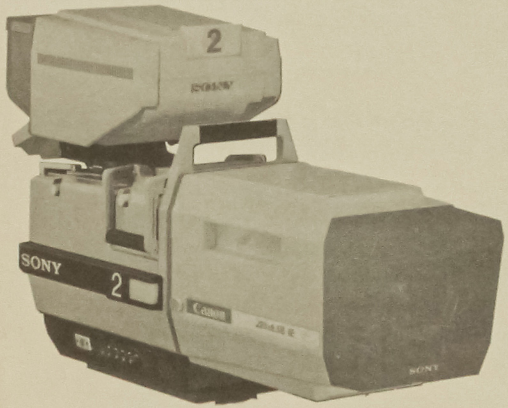
SONY

COLOR VIDEO CAMERA
BVP-360P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OPERATION AND MAINTENANCE MANUAL
1st Edition
Serial No. 30001 to 30010

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SECTION 1
OPERATION

1-1. FEATURES

The BVP-360P is a color video camera employing ⅔-inch magnetic-focus static-deflection three-pickup tubes (MF "PLUMBICON"* or MF "SATICON"*). It is a high-performance camera designed for use in studio and outside broadcast applications. The BVP-360P is a product of the latest digital and analogue technology that features a variety of innovative functions including auto setup. The ⅔-inch pickup tube allows power-saving, compact and lightweight camera head, so that it is easy to carry and manipulate.

A variety of optional accessories and recommended equipments, such as the CCU-360P camera control unit, the BKP-3601 camera control panel, and the RCP series remote control panel, are provided. Use of this camera in combination with these accessories and equipments can satisfy various needs for program production, news gathering, etc. In addition, it is designed to allow very flexible and comprehensive future system setups.

High picture performance

The use of a magnetic-focus static-deflection tube, with a LOC (Low Output Capacitance) type diode gun, ensures the high quality pictures. The features of this pickup tube are as follows:

- The new diode-gun construction allows a smaller and more precise beam spot, contributing to high resolution at any portion on the screen and considerably sharper screen.
- The use of the magnetic-focus static-deflection method assures super precise registration.
- The LOC-type construction gives higher S/N ratio.

High signal-to-noise ratio

The high S/N ratio of 58 dB (typical) is assured through a combination of the newly developed pre-pre-amplifier FET, excellent video circuitry and electronic packaging technology.

Digital registration compensation

The adoption of digital registration compensation assures precise registration at any portion on the screen. In addition, the camera head can instantly compensate for changes in the zoom lenses' aberration.

Sharp and stable image

By utilizing both out of band aperture correction and in band image enhancement, clear and sharp pictures are assured under a variety of shooting conditions from telephoto to wide angle.

Dynamic beam focus

Use of a dynamic beam focus circuit has improved the resolution around the screen.

Wide dynamic range

The BVP-360P has remarkably improved dynamic range and can accept 600% of normal light-level input. A wide range of high contrast scenes can be reproduced with a natural and sharp image with automatic or manual control of the knee point.

High sensitivity

The introduction of a new F1.2 high-sensitivity prism assures 2,000 lux (F4.5) in case of the MF "PLUMBICON" tube. When the video output level is raised by 24 dB, usable picture quality can be obtained even at a minimum subject illumination of 9 lux.

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* PLUMBICON is a registered trademark of N.V. PHILIPS. SATICON is a trademark.

Automatic beam-optimizer (ABO)

A newly developed automatic beam-optimizer circuit allows the camera to accept excessive light input of about 8 times that of normal conditions and to ouput the signals from the pickup tubes.

Automatic setup functions

Various microcomputer controlled auto setup functions and filing systems are provided. Thanks to these functions and systems, the camera setup can be completed with a short time. The camera maintenance can also be made very simple.

Self-diagnostic capability

The camera head has self-diagnostic capability which detects any problem inside the camera head. Owing to this, it is possible to cope with trouble shooting rapidly.

Various indications

The status of the camera head and the warning messages are displayed on the viewfinder screen by the built-in character generator. The box cursor, center marker, safety zone, and zoom position can also be displayed.

Compact and lightweight design

The BVP-360P is a compact, lightweight camera designed to satisfy the needs for both studio and outside broadcast operation.

Power-saving design

This camera has low power consumption because of the ⅔-inch magnetic-focus static-deflection tube.

High performance 7-inch viewfinder

In combination with a 7-inch monochrome viewfinder or color viewfinder (optional), the viewfinder can be adjusted to suit your purpose.

The viewfinder can easily be turned 60 degrees up and down, and 90 degrees to the right or left for comfortable viewing. The viewfinder can also be locked at the desired position.

Easy to attach viewfinder stand

The viewfinder stand can be easily attached to and detached from the camera head with the viewfinder on it.

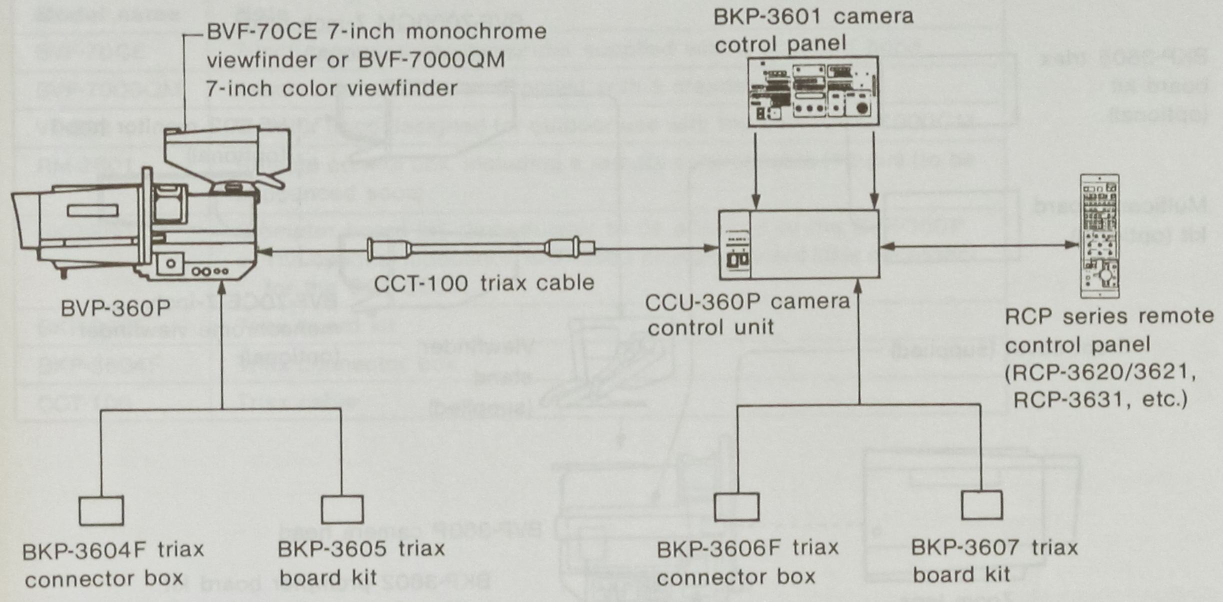
1-2. SYSTEM CONFIGURATION

1-2-1. Basic Configuration

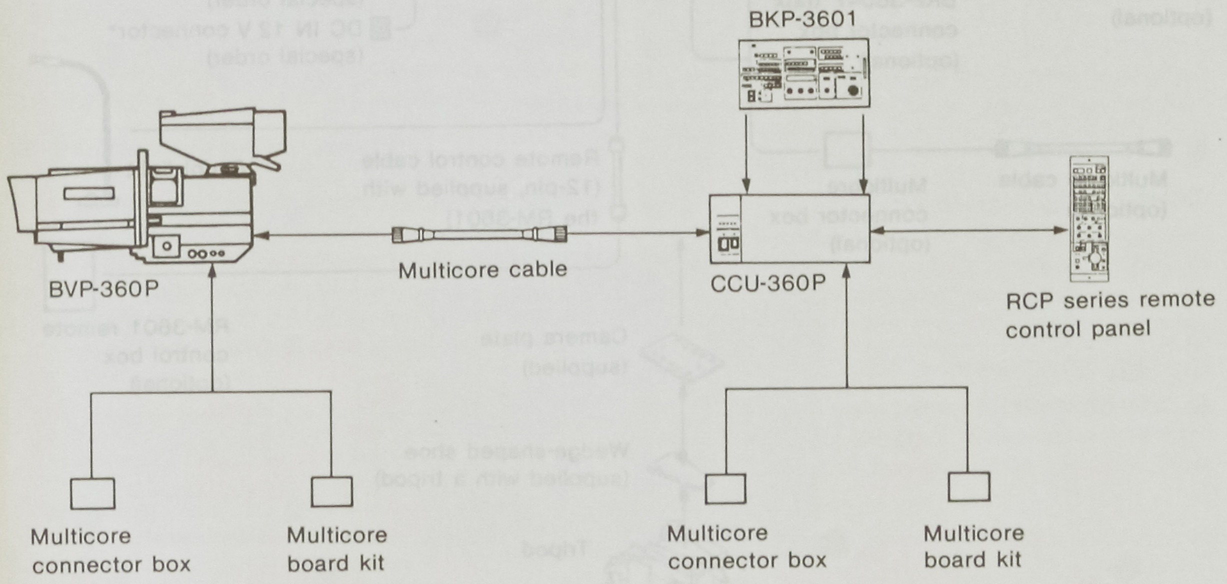
There are two types of cables which connect the BVP-360P and the CCU-360P; the CCT-100 triax cable and the multicore cable.

The unit (board kit and connector box) should be selected according to the cable used. When the triax cable is used, use the BKP-3605 triax board kit and the BKP-3604F connector box to the camera head. When the multicore cable is used, use the multicore board kit and the multicore connector box.

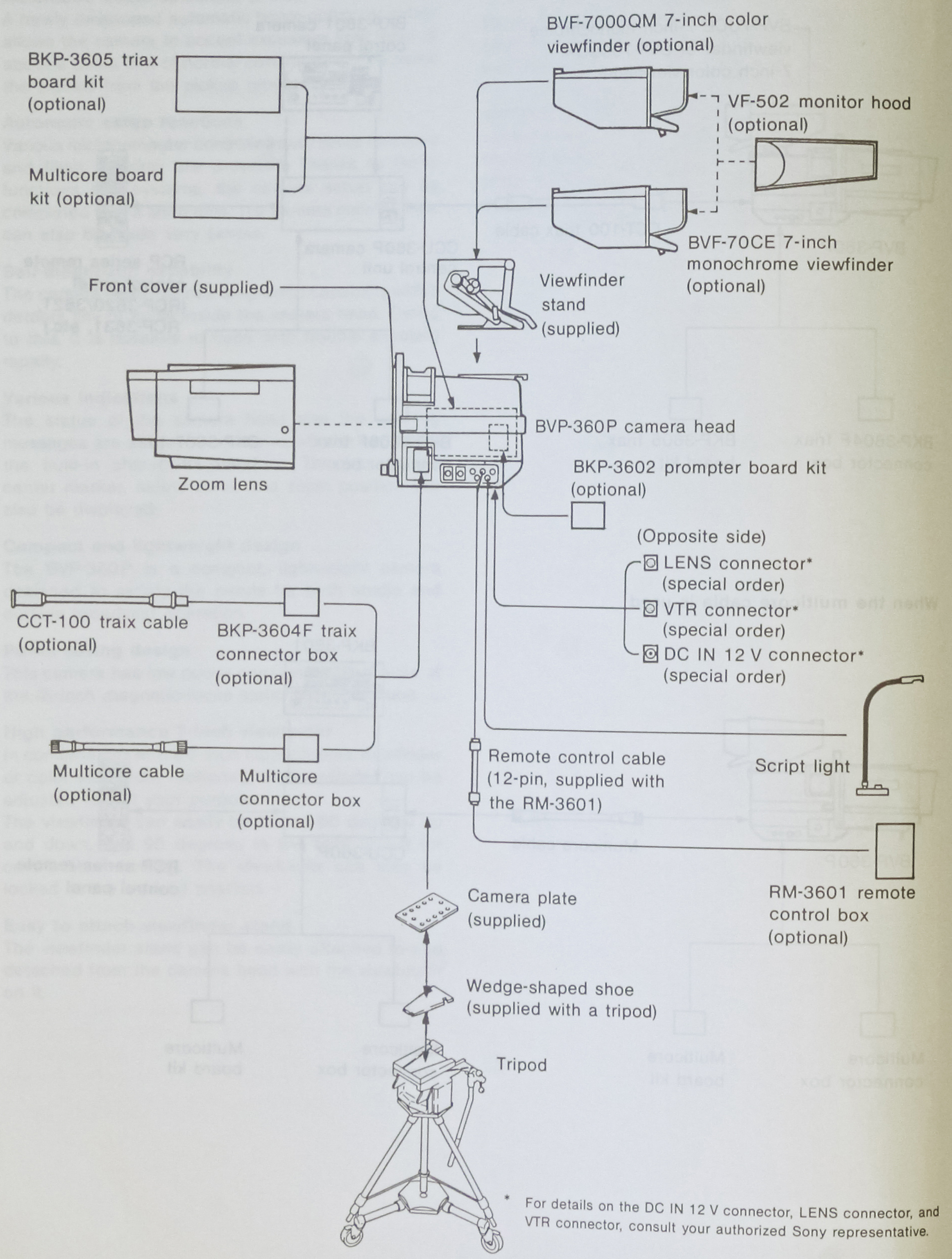
When the triax cable is used


BVF-70CE 7-inch monochrome viewfinder or BVF-7000QM 7-inch color viewfinder
BKP-3601 camera cotrol panel
BVP-360P
CCT-100 triax cable
CCU-360P camera control unit
RCP series remote control panel (RCP-3620/3621, RCP-3631, etc.)
BKP-3604F triax connector box
BKP-3605 triax board kit
BKP-3606F triax connector box
BKP-3607 triax board kit

When the multicore cable is used


BKP-3601
BVP-360P
Multicore cable
CCU-360P
RCP series remote control panel
Multicore connector box
Multicore board kit
Multicore connector box
Multicore board kit

1-2-2. Camera Head Supplied and Optional Accessory Configuration


BVF-7000QM 7-inch color viewfinder (optional)
BKP-3605 traix board kit (optional)
VF-502 monitor hood (optional)
Multicore board kit (optional)
BVF-70CE 7-inch monochrome viewfinder (optional)
Front cover (supplied)
Viewfinder stand (supplied)
BVP-360P camera head
Zoom lens
BKP-3602 prompter board kit (optional)
(Opposite side)
LENS connector* (special order)
VTR connector* (special order)
DC IN 12 V connector* (special order)
CCT-100 traix cable (optional)
BKP-3604F traix connector box (optional)
Multicore cable (optional)
Multicore connector box (optional)
Remote control cable (12-pin, supplied with the RM-3601)
Script light
Camera plate (supplied)
RM-3601 remote control box (optional)
Wedge-shaped shoe (supplied with a tripod)
Tripod

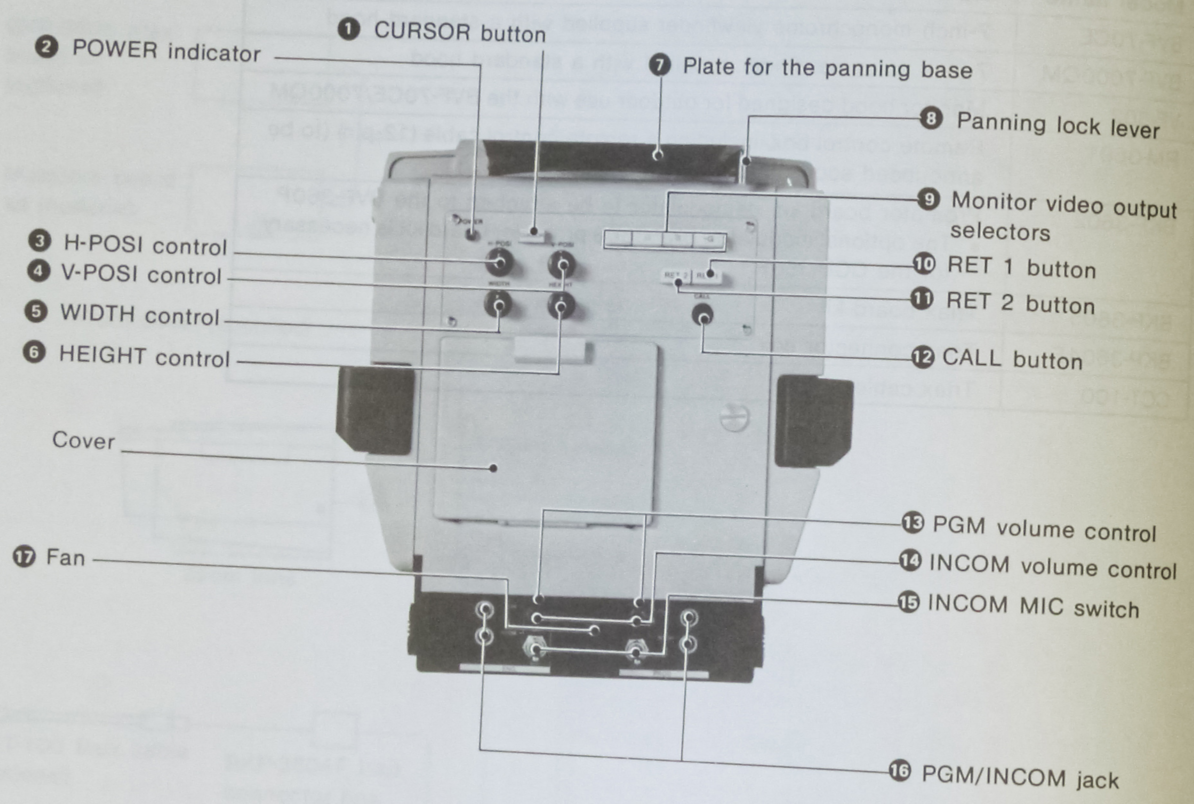
* For details on the DC IN 12 V connector, LENS connector, and VTR connector, consult your authorized Sony representative.

Optional accessories

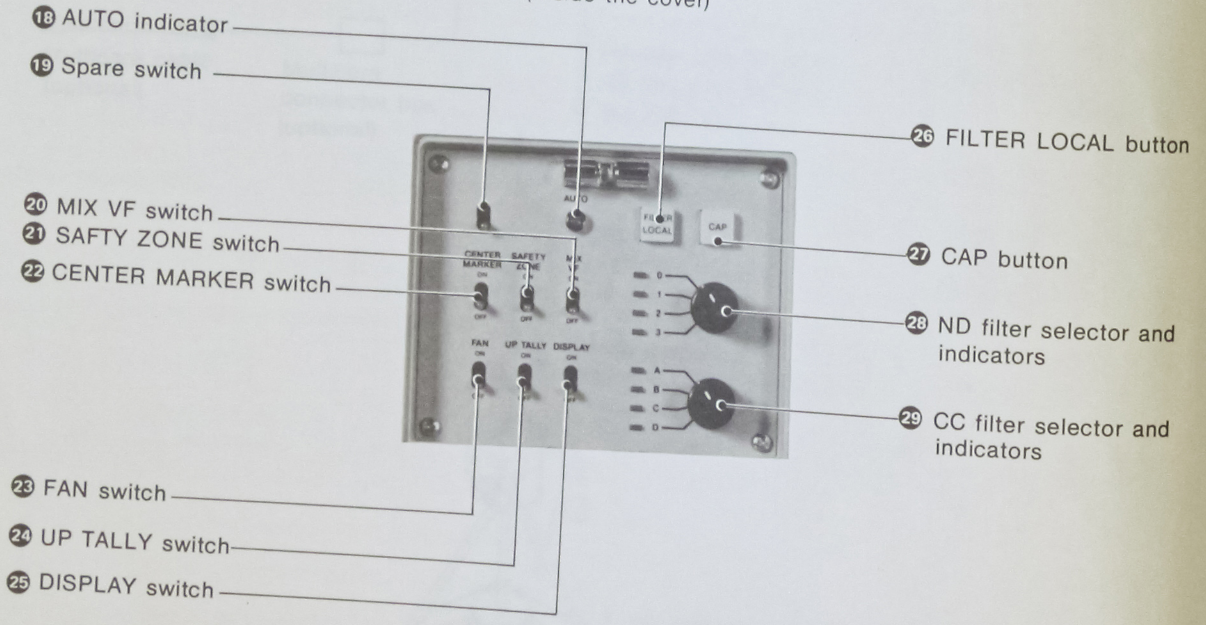
Model name	Note
BVF-70CE	7-inch monochrome viewfinder supplied with a standard hood
BVF-7000QM	7-inch color viewfinder supplied with a standard hood
VF-502	Monitor hood designed for outdoor use with the BVF-70CE/7000QM
RM-3601	Remote control box, including a remote control cable (12-pin) (to be announced soon)
BKP-3602	Prompter board kit, demodulator to be attached to the BVP-360P • The optional modulator, BKP-3603 prompter board kit is necessary for the CCU-360P.
BKP-3605	Triax board kit
BKP-3604F	Triax connector box
CCT-100	Triax cable

1-3. LOCATION AND FUNCTION OF PARTS AND CONTROLS

Rear Panel


① CURSOR button
② POWER indicator
⑦ Plate for the panning base
⑧ Panning lock lever
⑨ Monitor video output selectors
③ H-POSI control
④ V-POSI control
⑩ RET 1 button
⑪ RET 2 button
⑤ WIDTH control
⑥ HEIGHT control
⑫ CALL button
Cover
⑬ PGM volume control
⑰ Fan
⑭ INCOM volume control
⑮ INCOM MIC switch
⑯ PGM/INCOM jack

(Inside the cover)


⑱ AUTO indicator
⑲ Spare switch
㉖ FILTER LOCAL button
⑳ MIX VF switch
㉑ SAFTY ZONE switch
㉗ CAP button
㉒ CENTER MARKER switch
㉘ ND filter selector and indicators
㉙ CC filter selector and indicators
㉓ FAN switch
㉔ UP TALLY switch
㉕ DISPLAY switch

① CURSOR (box cusor) button
When this button is depressed, the box cursor appears on the viewfinder screen. When this button is pressed again, the cursor will disappear. As for the box cursor, refer to "1-6. Indications on the Viewfinder Screen".

② POWER indicator (green)
Lights up when the camera is turned on.

③ H-POSI (horizontal position) control
Adjusts the horizontal position of the box cursor on the viewfinder screen.

④ V-POSI (vertical position) control
Adjusts the vertical position of the box cursor on the viewfinder screen.

⑤ WIDTH control
Adjusts the width of the box cursor on the viewfinder screen within the safety zone (see ㉑).

⑥ HEIGHT control
Adjusts the height of the box cursor on the viewfider screen within the safety zone (see ㉑).

⑦ Plate for the panning base
Attach the viewfinder stand on this plate. For details, refer to "1-4-3. Attaching the Viewfinder Stand to the Camera Head".

⑧ Panning lock lever
Turn this lever to the left for panning base friction. Turn to the right to lock the panning base. The center position frees the panning base. For details, refer to "1-5. Adjusting the Angle of the Viewfinder".

⑨ Monitor video output selectors
Select the output signals to the viewfinder and monochrome monitors. It is possible to depress the R, G, B, and −G buttons independently or to depress a multiple number of these buttons. The signals of the depressed buttons are output.

- When the R, G, and B buttons are all depressed, the R+G+B signal is output to both the monochrome and color viewfinders.
- When none of the R, G, B, and −G buttons are depressed, the R+G+B signal is output to the monochrome viewfinder, and the component signal (R,G,B) is output to the color viewfinder.

⑩ RET 1 (return video 1) button
When this button is depressed, the return video 1 signal can be monitored on the viewfinder screen. At the same time, the return video 1 signal is output from the EXT VF OUT connector ㊶ . When this button is pressed again, the camera picture can be seen.

⑪ RET 2 (return video 2) button
If this button is depressed when another system (the return video 2) is in operation besides the return video 1 system, the return video 2 signal can be monitored on the viewfinder screen. The return video 2 signal is then output from the EXT VF OUT connector ㊶ . When this button is pressed again, the camera picture can be seen.

- The return video 1 signal is output when both the RET 1 and RET 2 buttons are depressed simultaneously.

⑫ CALL button
Press this button when you call the operators of the CCU and the RCP sides.
When it is pressed, the red tally lamps on the CCU and the RCP light up.

⑬ PGM (program audio) volume control
Adjusts the volume of the program audio.

⑭ INCOM (intercom) volume control
Adjusts the volume of the intercom.

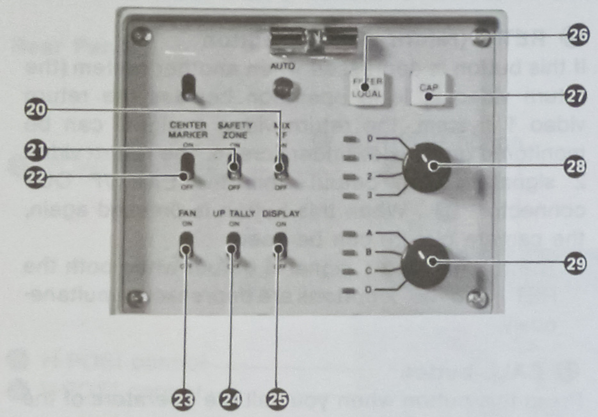
⑮ INCOM MIC (microphone for intercom) switch
Turns the headset microphone on or off.

⑯ PGM/INCOM (program audio/intercom) jacks
(double jack)
The headset is plugged into these jacks. The upper jack is for the program audio and the lower jack is for the intercom.

⑰ Fan
For ventilating the inside of the camera head when the camera is continuously operated under high temperature for long hours. The fan is turned on or off with the FAN switch ㉓ .

⑱ AUTO (auto setup) indicator (red)
Lights for about 5 seconds after auto setup adjustment of the camera with the buttons in the AUTO SETUP group, the AWB button, and the ABB button on the BKP-3601 and the RCPs, etc., and it will automatically go out.
This indicator blinks for about 5 seconds when any error is detected during auto setup adjustment, and then automatically goes out. It also blinks when any error is detected in the serial data from the CCU-360P.

⑲ Spare switch



⑳ MIX VF (mixed return video) switch
When the RET 1 button ⑩ or the RET 2 button ⑪ is depressed, with this switch set to ON, the camera output signal mixed with the return video 1 signal or the return video 2 signal can be monitored on the viewfinder screen. The mixing ratio can be set with the potentiometer inside the CCU-360P. For details, refer to Section 2 and later in the CCU-360P's manual.
When the RET 1 or the RET 2 button is depressed, with this switch set to OFF, only the return video 1 or the return video 2 signal can be monitored on the viewfinder screen.

㉑ SAFETY ZONE switch
When this switch is set to ON, the frame showing 80% of the picture shot by the camera (safety zone) is displayed. When it is set to OFF, the frame will disappear. As for the safety zone, refer to "1-6. Indications on the Viewfinder Screen".
With the switch inside the camera head, the frame showing 90% of the picture is available. For details, refer to Section 2 and later.

㉒ CENTER MARKER switch
When this switch is set to ON, the white cross showing the center of the viewfinder screen is displayed. When it is set to OFF, the white cross will disappear. As for the center marker, refer to "1-6. Indications on the Viewfinder Screen".

㉓ FAN switch
Turns fan ⑰ on or off.

㉔ UP TALLY switch
The function of the tally lamps (the external, side, front tally lamps, etc., except for the red tally lamp on the viewfinder screen side) can be turned on or off.

㉕ DISPLAY switch
By setting this switch to ON or OFF, the status of the camera head or the warning messages will appear or disappear. For details, refer to "1-6. Indications on the Viewfinder Screen".

㉖ FILTER LOCAL button
When this button is pressed and lights up, the ND and CC filters can be selected on the camera side. When this button is pressed again and turned off, the filters will be selected on the CCU side.

㉗ CAP button
When this button is pressed and lights up, the ND filter is set to 0 and the CC filter is set to A, and at the same time the iris is closed.
When this button is pressed again and turned off, the ND filter, the CC filter, and the iris will return to the previous status.

㉘ ND (neutral density) filter selector and indicators (orange)
An appropriate filter can be selected with this selector when the FILTER LOCAL button ㉖ is lit. This will light the indicator of the selected filter.

Position	Filter
0	Cap
1	Clear
2	1/4 ND
3	1/16 ND

When the FILTER LOCAL button is not lit, the indicator corresponding to the filter selected from the BKP-3601 camera control panel, the remote control panel, etc., will light to indicate which filter is in use.

㉙ CC (color temperature conversion) filter selector and indicators (orange)
An appropriate filter can be selected according to the lighting conditions with this selector when the FILTER LOCAL button ㉖ is lit. Then the indicator of the selected filter will light up.

Position	Color temperature
A	Special filter*
B	3,200°K
C	4,300°k
D	6,300°K

When the FILTER LOCAL button is not lit, the indicator corresponding to the filter selected from the BKP-3601 camera control panel, the remote control panel, etc., will light to indicate which filter is in use.

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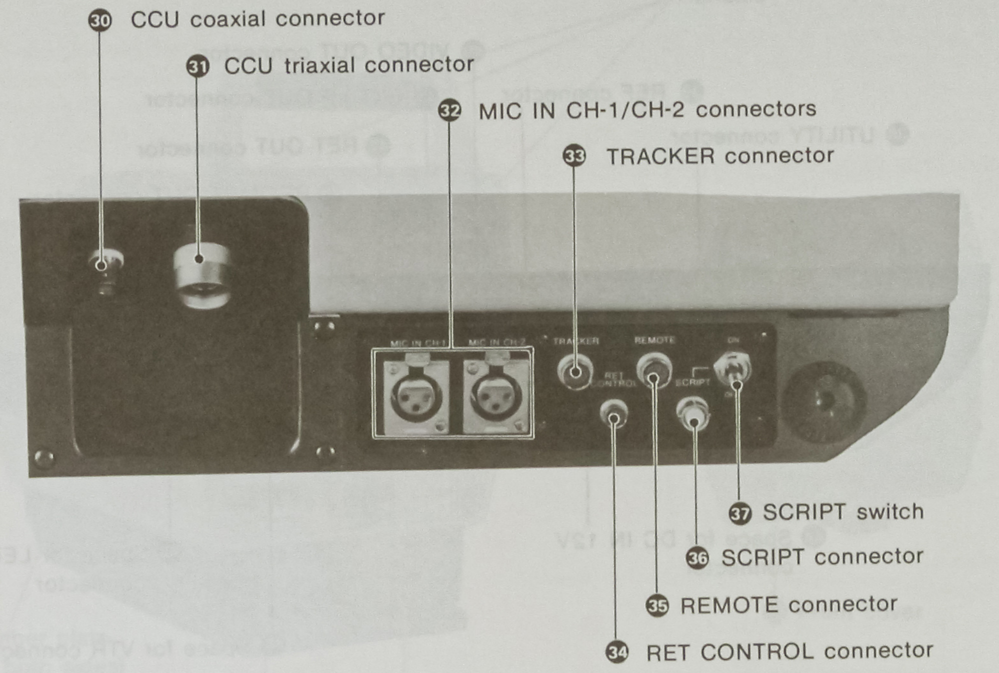
* The cross filter is factory preset to position A. If desired, it can be replaced by other special effect filters. For details, consult your authorized Sony representative.

Left side connectors



㉚ CCU coaxial connector (BNC type)
Connect a coaxial cable (optional) to the CAMERA COAX connector of the CCU-360P. All the signals of the BVP-360P system except for power supply can be input and output through the coaxial cable. When the camera is connected to the CCU-360P with this connector, it is necessary to supply power to the camera head independently.

㉛ CCU triaxial connector
Connect a CCT cable (optional) to the CAMERA TRIAX connector of the CCU-360P. All the signals of the BVP-360 system, including power supply, control, video, and audio signals can be input and output through the CCT cable.

㉜ MIC IN CH-1/CH-2 (microphone input channels 1/2) connectors (XLR, 3-pin)
For two-channel microphone inputs.

㉝ TRACKER connector (10-pin)*
The red tally signal and the intercom signal of the engineer line are output through this connector.

㉞ RET CONTROL (return video control) connector (6-pin)*
Connect an appropriate equipment for remote switching of the return video 1 and 2 as well as the intercom microphone.

㉟ REMOTE (remote control box) connector (12-pin)*
Connect the RM-3601 remote control box (optional) to control the camera remotely.

㊱ SCRIPT (script light) connector (4-pin)*
Power supply (about 5W) for a script light is available.

㊲ SCRIPT (script light) switch
Turns on or off a script light for illuminating a script.

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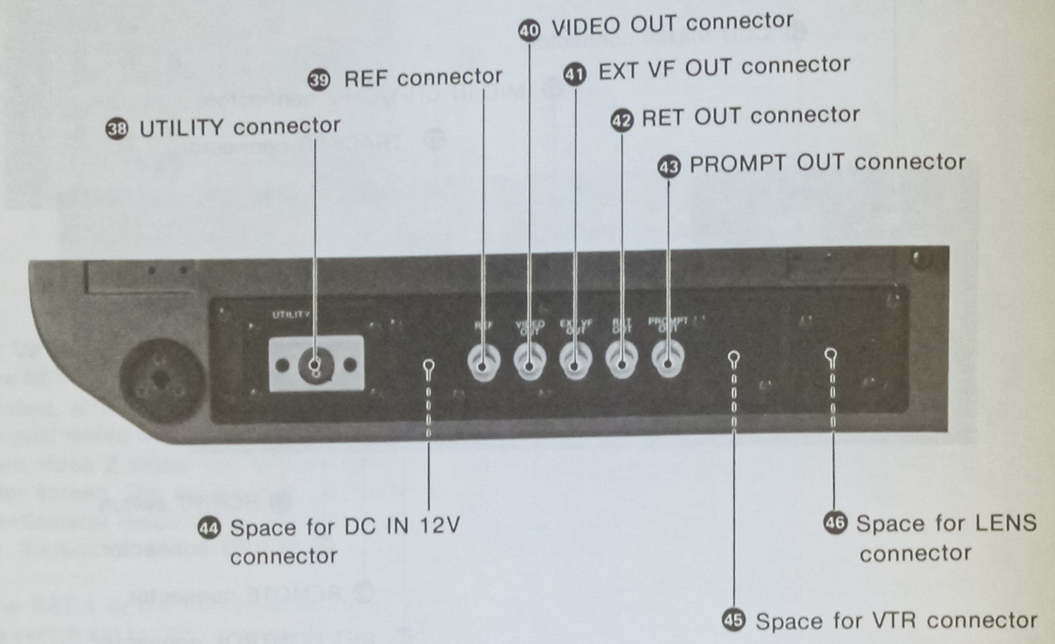
* For details on the pin arrangement of the connectors ㉝ to ㊱, refer to Section 2 and later.

Right side connectors


㊵ VIDEO OUT connector
㊴ REF connector
㊶ EXT VF OUT connector
㊳ UTILITY connector
㊷ RET OUT connector
㊸ PROMPT OUT connector
UTILITY
REF
VIDEO OUT
EXT VF OUT
RET OUT
PROMPT OUT
㊹ Space for DC IN 12V connector
㊻ Space for LENS connector
㊺ Space for VTR connector

㊳ **UTILITY (utility power) connector** (3-pin)
Utility power (220V ac) for external equipment is available. 100V, 120V, and 240V ac are also available if the socket inside the camera head is changed. For details, refer to Section 2 and later.

㊴ **REF (reference input signal) connector** (BNC type)
The reference sync signal (VBS or BS) is input through this connector.

㊵ **VIDEO OUT (output) connector** (BNC type)
In self-contained operation, the encoded video signal is output through this connector. When the camera is used in combination with the CCU, the Y signal is output through this connector.

㊶ **EXT VF OUT (external viewfinder video output) connector** (BNC type)
The same signal which is monitored on the viewfinder is output to an external monochrome monitor. The output signal can be switched by the monitor video output selectors ❾.

㊷ **RET OUT (return video output) connector** (BNC type)
Normally, the return video 1 signal is output. When the RET 2 button ⓫ is depressed, the return video 2 signal is output.

㊸ **PROMPT OUT (prompter output) connector** (BNC type)
The signal for a prompter monitor is output when the BKP-3602 prompter board kit (optional) is attached to the camera head and the BKP-3603 prompter board kit (optional) is attached to the CCU.

㊹ **Space for DC IN (external DC power input) 12V connector***
If desired, the connector (XLR, 4-pin) used to operate the camera with external dc power can be installed here.

㊺ **Space for VTR connector***
If desired, the multicore connector (26-pin) used to connect the Betacam system VTR can be installed here.

㊻ **Space for LENS connector***
If desired, the multicore connector (26-pin) used to attach a lens other than Sony's recommended lenses to the camera head can be installed here.

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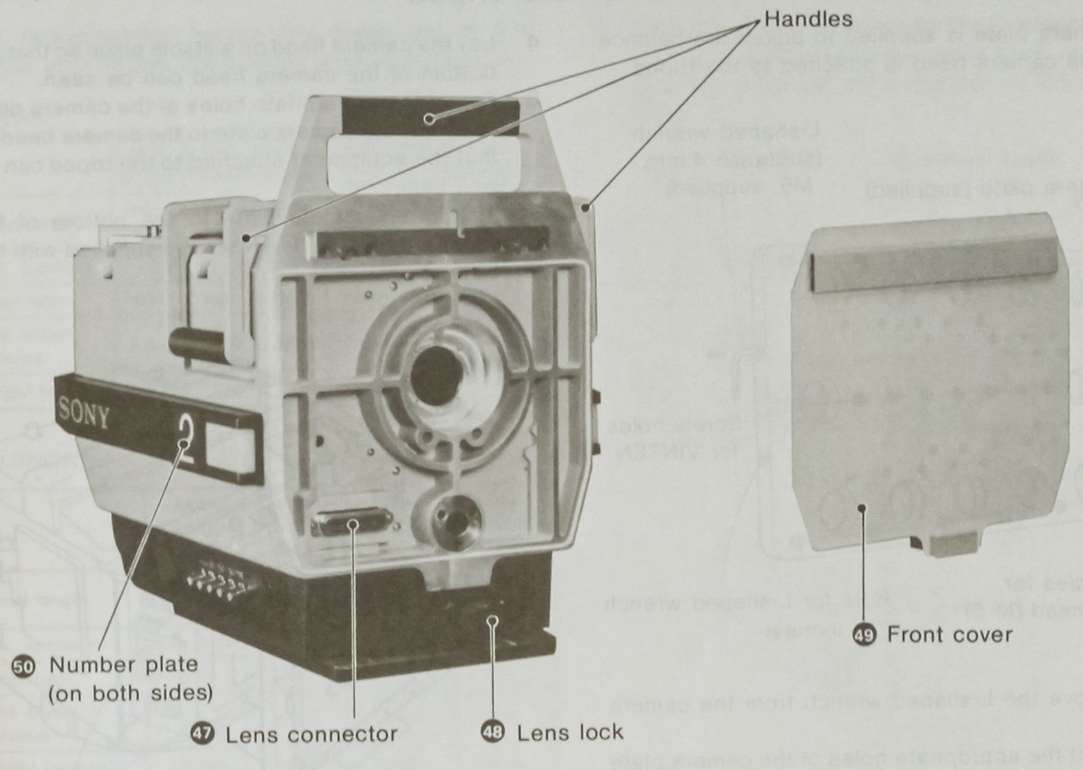
* For details on ㊹ to ㊻, consult your authorized Sony representative.

Front panel


Handles
SONY
㊾ Front cover
㊿ Number plate (on both sides)
㊼ Lens connector
㊽ Lens lock

㊼ **Lens connector**
When Sony's recommended lens is attached to the camera head, the lens can be powered from the camera head. The signals to control the lens are input and output through this connector.

㊽ **Lens lock**
Locks the lens which is hooked at the projection on the upper front of the camera head.

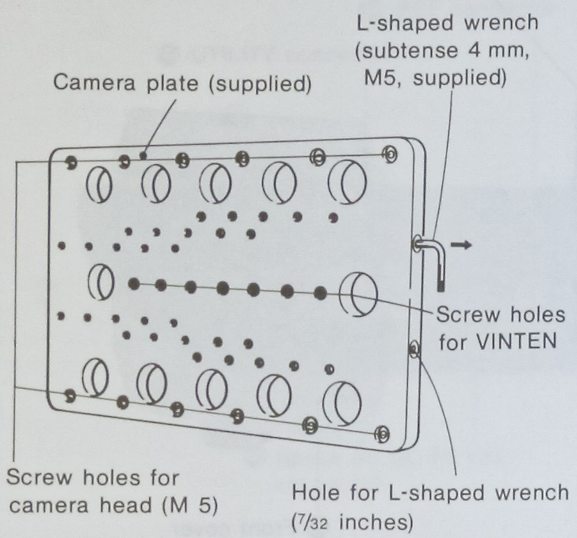
㊾ **Front cover** (supplied)
This cover is attached to the front of the camera head at the factory.

㊿ **Number plate** (supplied)
Attach the number plate corresponding to the number of the connected camera.

1-4. SYSTEM SETUP

1-4-1. Attaching the Camera Head to the Tripod

The camera plate is supplied to adjust the balance when the camera head is attached to the tripod.

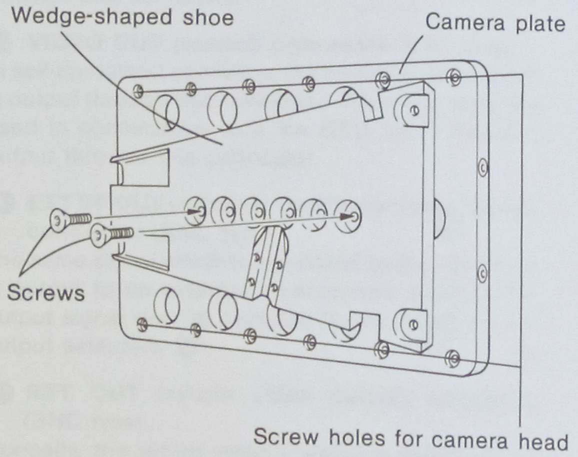

L-shaped wrench (subtense 4 mm, M5, supplied)
Camera plate (supplied)
Screw holes for VINTEN
Screw holes for camera head (M 5)
Hole for L-shaped wrench (7/32 inches)

1 Remove the L-shaped wrench from the camera plate.

2 Select the appropriate holes of the camera plate to attach the wedge-shaped shoe supplied with the tripod to the camera plate to balance the camera head, lens, viewfinder, and other accessories.

3 Attach the wedge-shaped shoe to the camera plate with the screws supplied with the tripod.

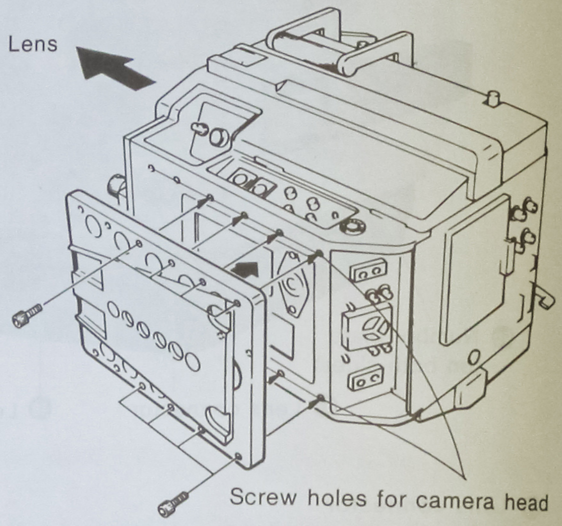
Example: When the VINTEN's tripod is used


Wedge-shaped shoe
Camera plate
Screws
Screw holes for camera head

4 Lay the camera head on a stable place so that the bottom of the camera head can be seen.

5 Select the appropriate holes of the camera plate to attach the camera plate to the camera head so that the equipment attached to the tripod can be well balanced.

6 Attach the camera plate to the bottom of the camera head with the 8 screws supplied with the BVP-360P.


Lens
Screw holes for camera head

7 Attach the camera head to the tripod stand.

1-4-2. Attaching the Lens to the Camera Head

The recommended lenses are listed below. For further information, contact the lens manufacturer.

CANON

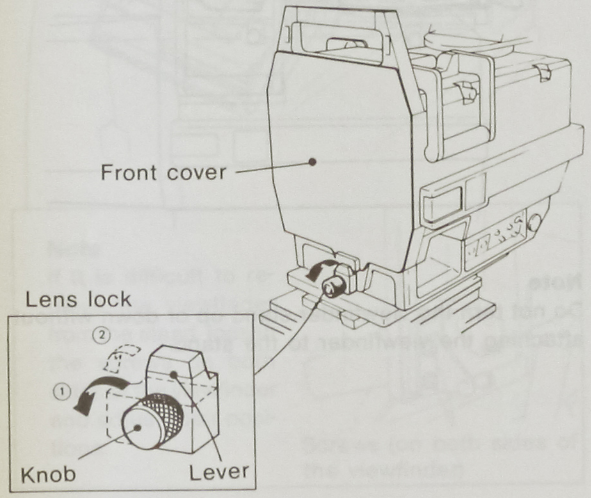
	J40× 9.5BIE	J25× 11.5BIE	J20× 8.5BIE	J18× 8BIE	J15× 8.5BIE	J14× 9BIE
Focus length	9.5—380mm	11.5—288mm	8.5—170mm	8—144mm	8.5—128mm	9—126mm
Max. aperture	1 : 1.2	1 : 1.6	1 : 1.6	1 : 1.2	1 : 1.6	1 : 1.2
Zoom ratio	40×	25×	20×	18×	15×	14×
Mini. object distance	2.5m	1.5m	0.6m	0.6m	0.6m	0.7m
Weight (approx.)	30kg	15kg	9kg	27kg	9kg	22kg

FUJINON

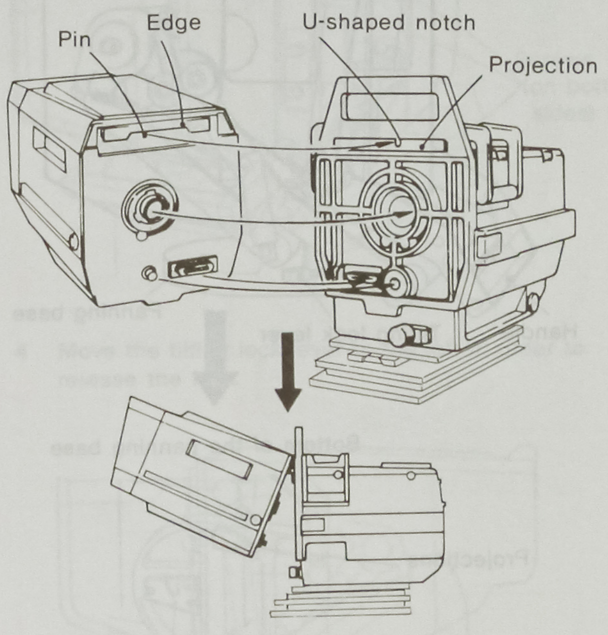
	A44× 9.5BESM -18P	A30× 115BESM -18P	A17× 8.5BESM -18P	A14× 8BESM -18P
Focus length	9.5—420mm	11—330mm	8.5—145mm	8—112mm
Max. aperture	1 : 1.7	1 : 1.6	1 : 1.5	1 : 1.5
Zoom ratio	44×	30×	17×	14×
Mini. object distance	3.0m	2.4m	2.0m	1.6m
Weight (approx.)	13.5kg	12kg	13kg	13kg

NOTE
ANGENIEUX and SCHNEIDER lenses are also available.

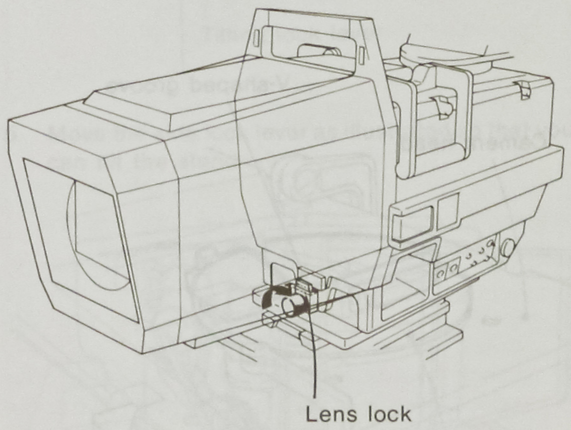
1 Loosen the knob of the lens lock on the lower front of the camera head, and turn the lever as illustrated. Remove the front cover from the camera head.


Front cover
Lens lock
②
①
Knob
Lever

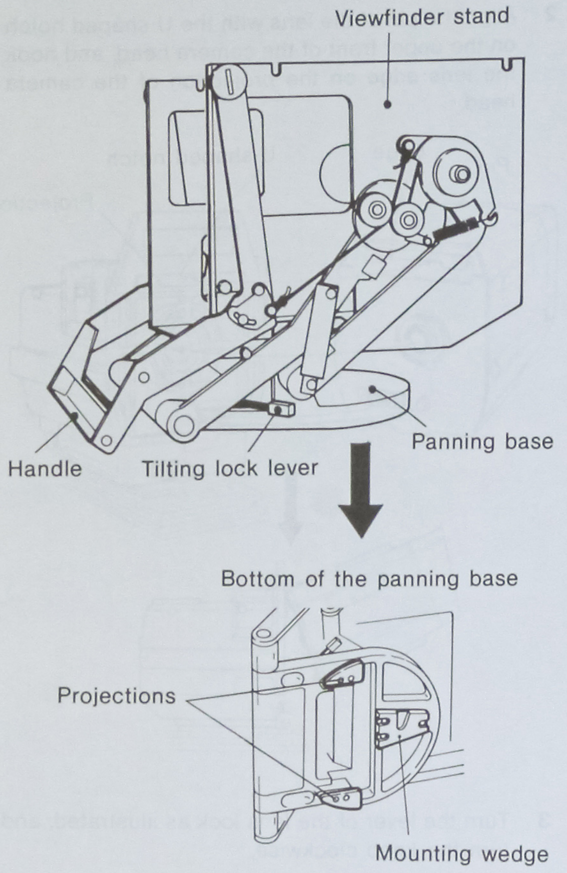
2 Align the pin of the lens with the U-shaped notch on the upper front of the camera head, and hook the lens edge on the projection of the camera head.

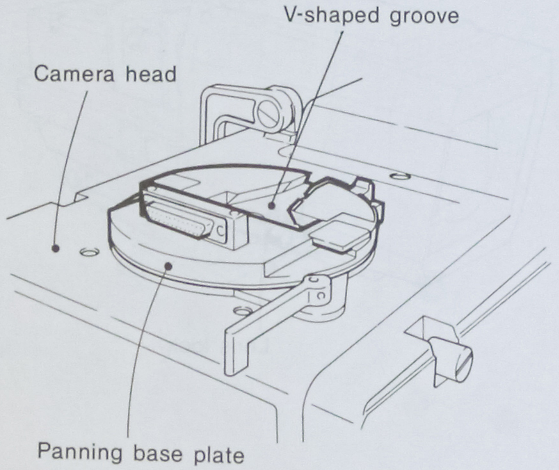

Pin
Edge
U-shaped notch
Projection

3 Turn the lever of the lens lock as illustrated, and turn the knob clockwise.

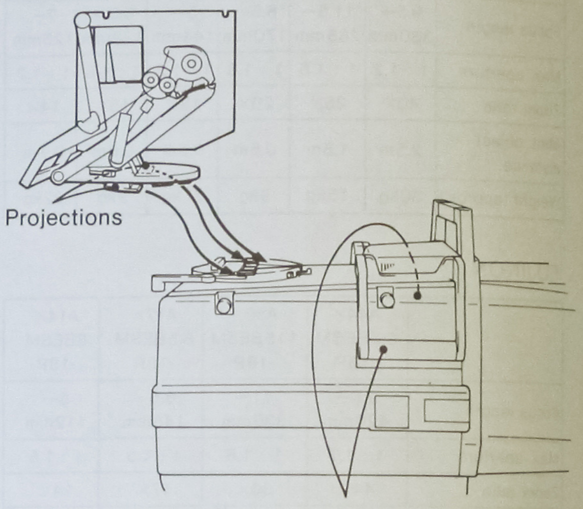


1-4-3. Attaching the Viewfinder Stand to the Camera Head


Viewfinder stand
Handle
Tilting lock lever
Panning base
Bottom of the panning base
Projections
Mounting wedge

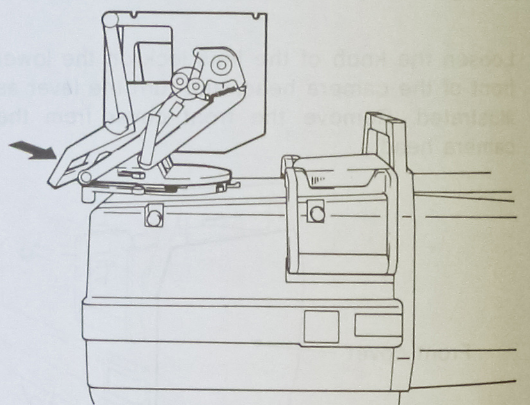

V-shaped groove
Camera head
Panning base plate

1 Put the viewfinder stand on the panning base plate so that the wedge of the panning base may be mounted in the V-shaped groove of the plate, and so that the projections of the panning base may be positioned as illustrated.


Projections

Lower the handles on both sides of the camera head.

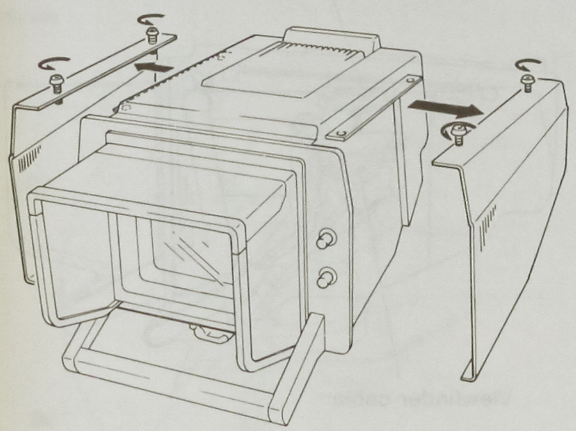
2 Insert the panning base into the plate securely by pushing the handle of the viewfinder stand.



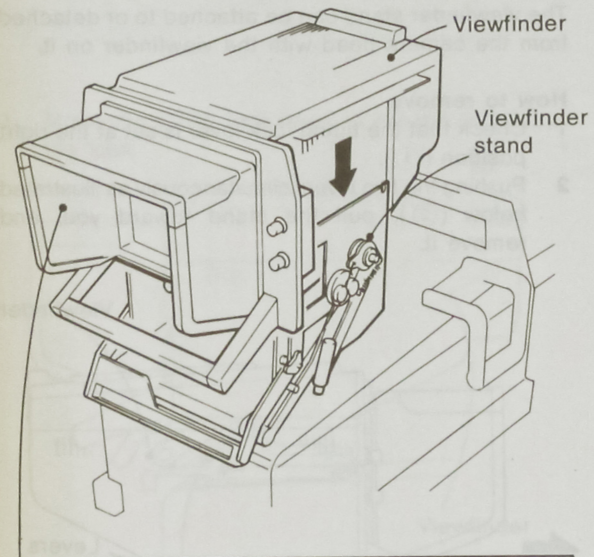
Note
Do not turn the viewfinder stand up or down without attaching the viewfinder to the stand.

1-4-4. Attaching the Viewfinder to the Stand

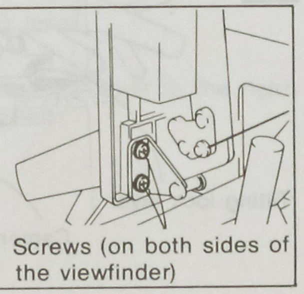
1 Loosen the screws of both side covers of the viewfinder (BVF-70CE, BVF-7000QM), and remove the covers.



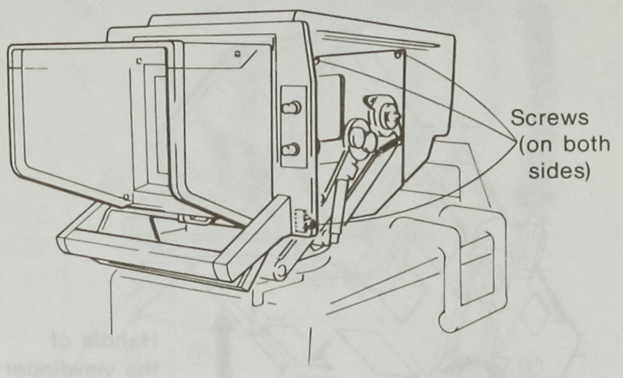
2 Align the viewfinder with the stand and insert as illustrated.


Viewfinder
Viewfinder stand

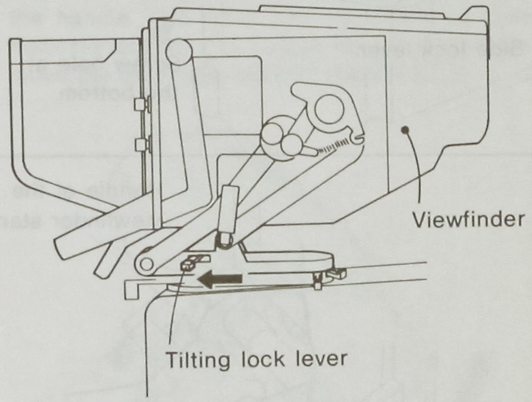
Note
If it is difficult to remove the viewfinder from the stand, loosen the screws on both sides of the viewfinder and adjust their positions.


Screws (on both sides of the viewfinder)

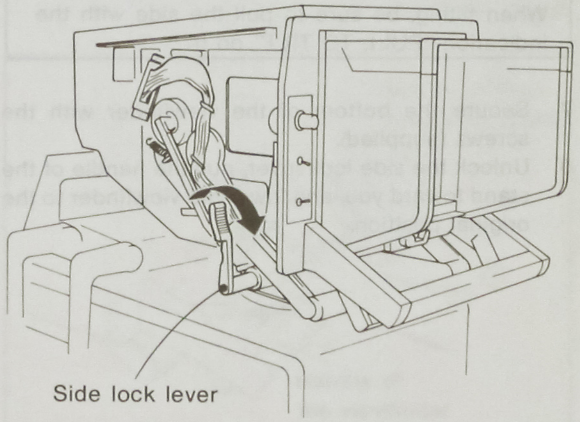
3 Secure the viewfinder to the stand with the 6 screws (supplied).


Screws (on both sides)

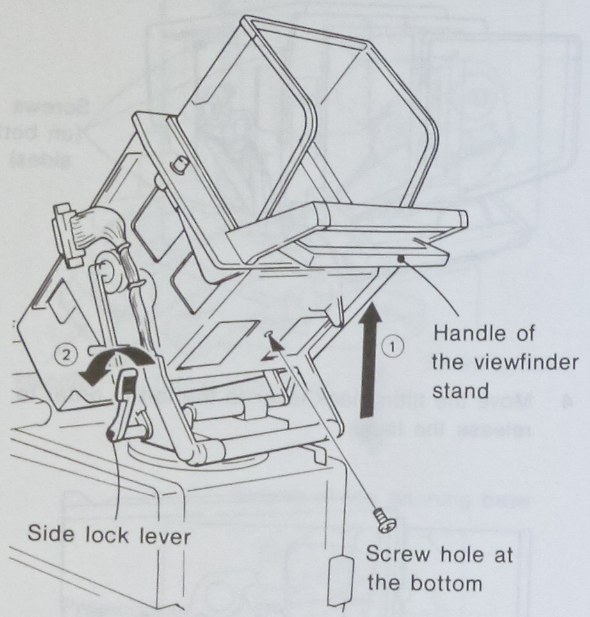
4 Move the tilting lock lever to the left in order to release the lock.

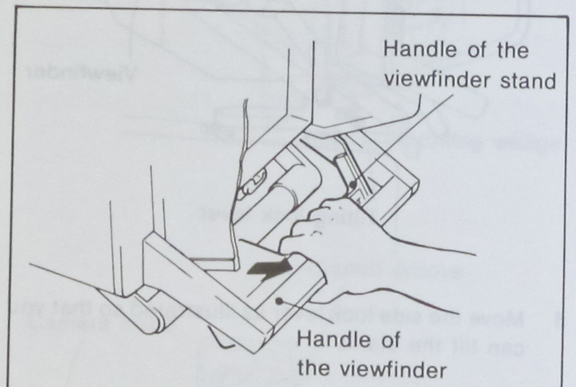

Viewfinder
Tilting lock lever

5 Move the side lock lever as illustrated so that you can tilt the stand.


Side lock lever

6 Pull the handle of the stand toward you, and pull up the stand until the bottom of the viewfinder can be seen (①). Lock the stand by moving the side lock lever as illustrated (②).


②
①
Handle of the viewfinder stand
Side lock lever
Screw hole at the bottom

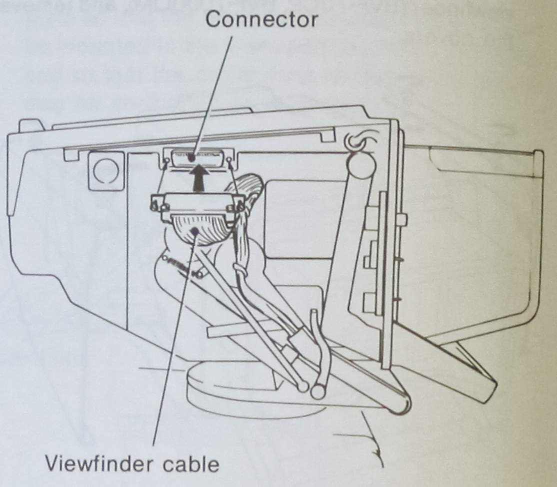

Handle of the viewfinder stand
Handle of the viewfinder

When tilting, be sure to pull the side with the indication "PULL TO TILT" on it.

7 Secure the bottom of the viewfinder with the screws (supplied).

8 Unlock the side lock lever, pull the handle of the stand toward you, and lower the viewfinder to the original position.

9 Insert the viewfinder cable into the connector, and secure the cable with the screws.


Connector
Viewfinder cable

10 Secure each cover on the corresponding side of the viewfinder with the screws.

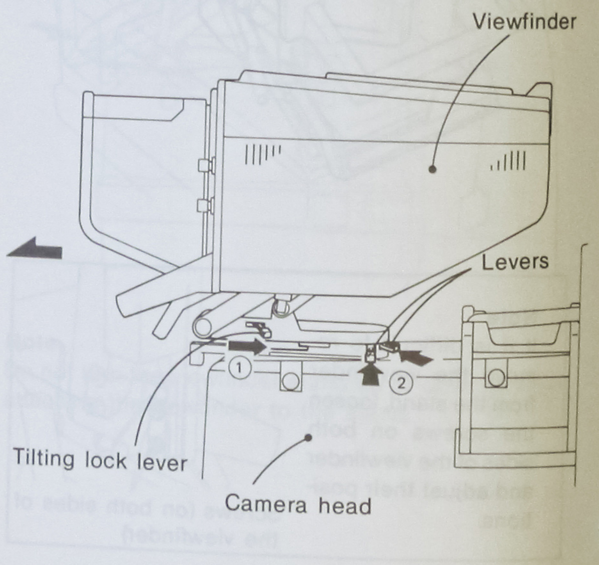
Note

The viewfinder stand can be attached to or detached from the camera head with the viewfinder on it.

How to remove

1 Check that the tilting lock lever is set at the right position (①).

2 Pushing the two levers simultaneously as illustrated below (②), pull the stand toward you, and remove it.

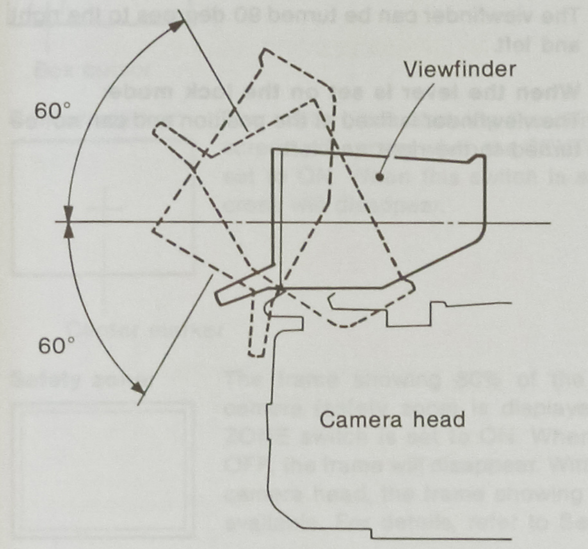

Viewfinder
Levers
①
②
Tilting lock lever
Camera head

1-5. ADJUSTING THE ANGLE OF THE VIEWFINDER

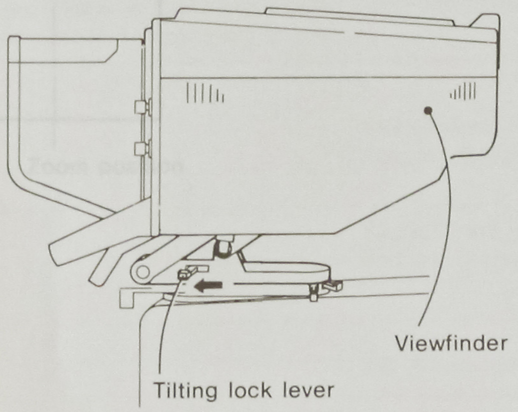
Adjust the angle of the viewfinder so that it is easy to see the viewfinder screen.

How to tilt the viewfinder

The viewfinder can be turned 60 degrees up and down.

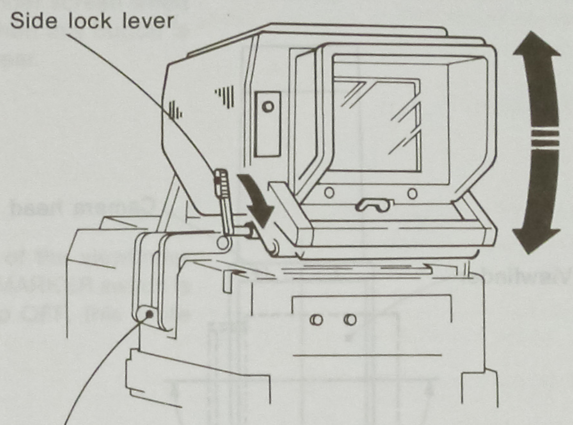

60°
60°
Viewfinder
Camera head

1 Move the tilting lock lever to the left to release the lock.


Viewfinder
Tilting lock lever

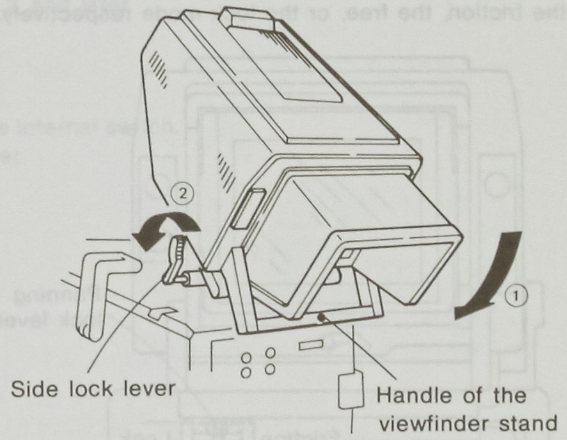
- Be sure to set the tilting lock lever to the right when the camera is carried.

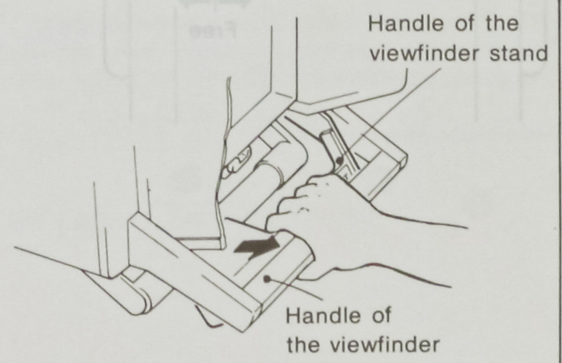
2 Move the side lock lever as illustrated so that the viewfinder can be turned up and down.


Side lock lever

Keep both handles of the camera head down.

3 Pull the handle of the stand toward you, turn the viewfinder up to the desired position and release the handle. The viewfinder stand will be automatically locked (①). To lock the stand securely, move the side lock lever as illustrated (②).

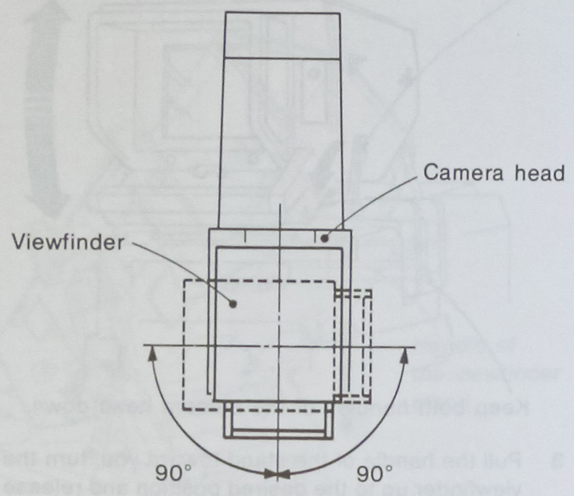

②
①
Side lock lever
Handle of the viewfinder stand


Handle of the viewfinder stand
Handle of the viewfinder

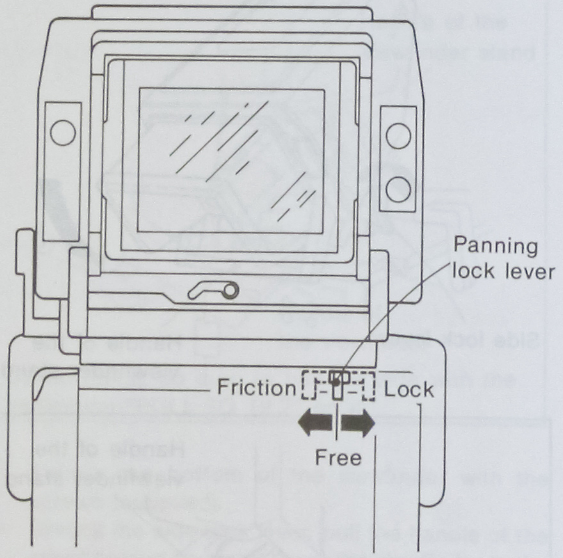
When tilting, be sure to pull the side with the indication "PULL TO TILT" on it.

How to pan the viewfinder

The viewfinder can be turned 90 degrees to the right and left.



When the panning lock lever is turned to the left, the center, or the right, the panning base will become on the friction, the free, or the lock mode respectively.



When the lever is set on the friction mode:

The viewfinder does not easily turn right and left, even if you move the camera while shooting. However, the viewfinder can be turned 90 degrees to the right and left even on this mode with a little more force than on the free mode.

When the lever is set on the free mode:

The viewfinder can be turned 90 degrees to the right and left.

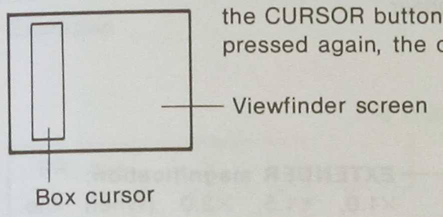
When the lever is set on the lock mode:

The viewfinder is fixed at the position and can not be turned to the right and left.

1-6. INDICATIONS ON THE VIEWFINDER SCREEN

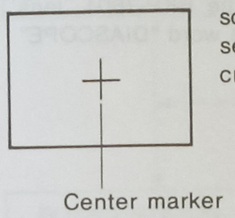
Mark indication

Box cusor:



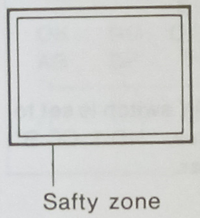
The box cursor appears on the viewfinder screen when the CURSOR button is depressed. When this button is pressed again, the cursor will disappear.

Center marker:



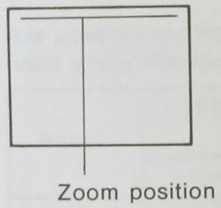
The white cross showing the center of the viewfinder screen will appear when the CENTER MARKER switch is set to ON. When this switch is set to OFF, this white cross will disappear.

Safety zone:



The frame showing 80% of the picture shot by the camera (safety zone) is displayed when the SAFETY ZONE switch is set to ON. When this switch is set to OFF, the frame will disappear. With the switch inside the camera head, the frame showing 90% of the picture is available. For details, refer to Section 2 and later.

Zoom position:



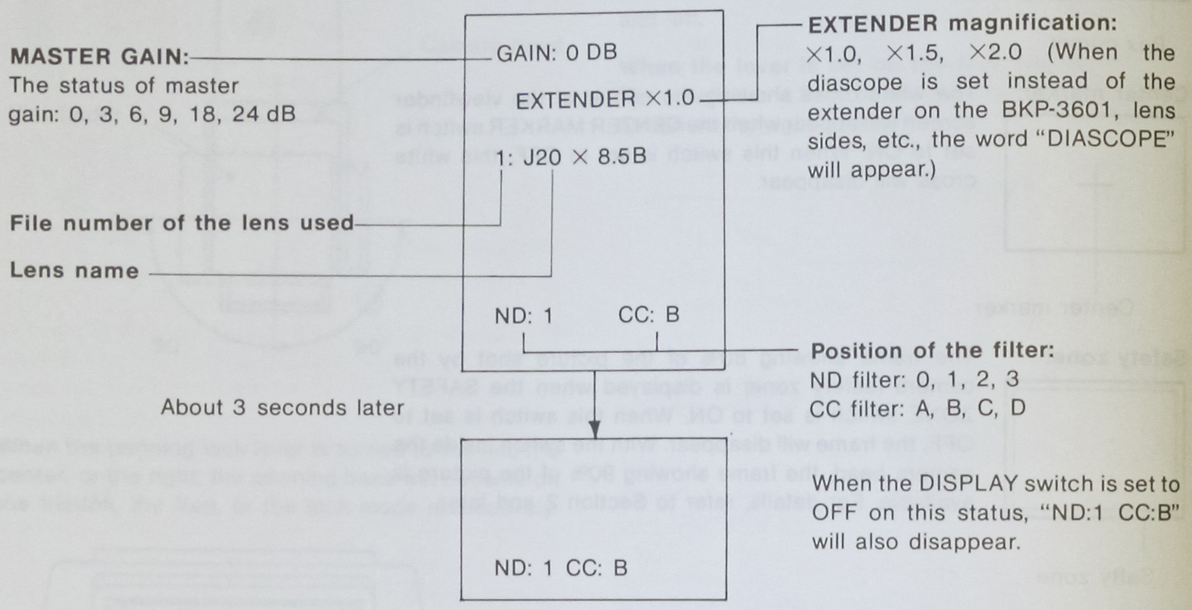
The zoom position is displayed with the internal switch. For details, refer to Section 2 and later.

Character indications

When the camera operates in good order

When the DISPLAY switch is set to ON, the following indications will appear on the viewfinder screen.

Example


GAIN: 0 DB
EXTENDER ×1.0
1: J20 × 8.5B
ND: 1
CC: B
About 3 seconds later
ND: 1 CC: B

MASTER GAIN: The status of master gain: 0, 3, 6, 9, 18, 24 dB

File number of the lens used

Lens name

EXTENDER magnification: ×1.0, ×1.5, ×2.0 (When the diascope is set instead of the extender on the BKP-3601, lens sides, etc., the word "DIASCOPE" will appear.)

Position of the filter:
ND filter: 0, 1, 2, 3
CC filter: A, B, C, D

When the DISPLAY switch is set to OFF on this status, "ND:1 CC:B" will also disappear.

- When the setting of any item above is changed, even with the DISPLAY switch set to OFF, the data of the item is displayed for about 3 seconds and then automatically disappears.
- If the BARS button is set to on or off on the CCU side when the DISPLAY switch is set to OFF, "BARS: ON" or "BARS: OFF" is displayed for about 3 seconds and then automatically disappears.

When the camera does not operate properly

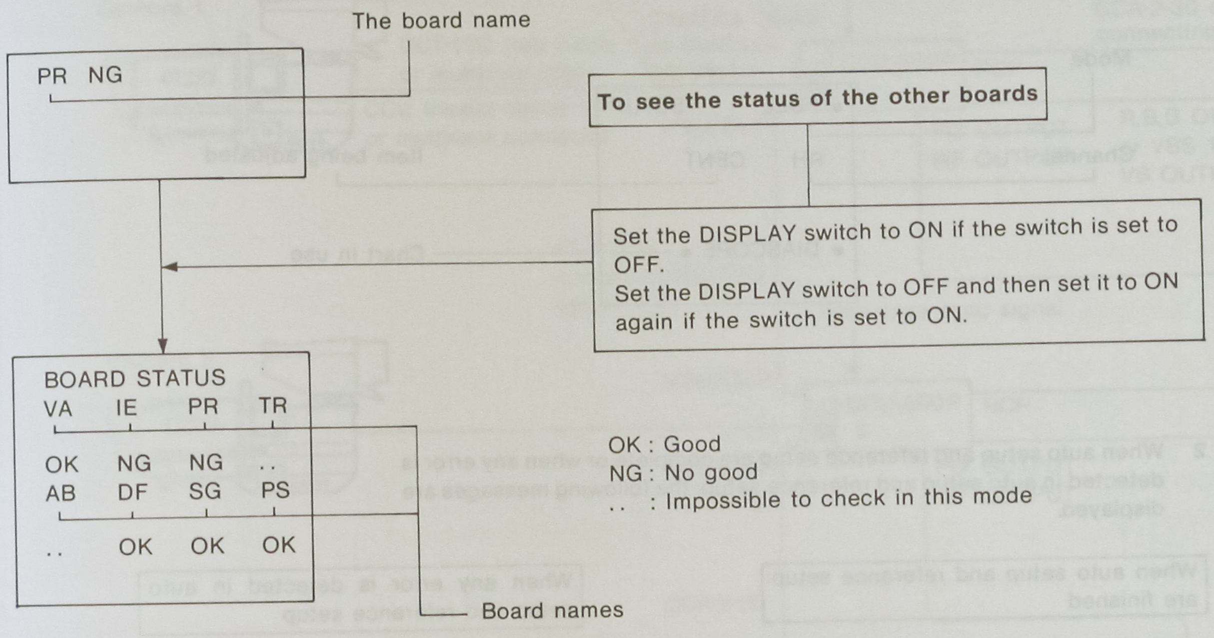
The following warning messages and self-diagnostic indications are displayed regardless of the DISPLAY switch setting.

Warning messages:		
	NO CCU DATA	This message blinks when serial data are not input from the CCU to the camera head.
	FRAMING ERROR	This message blinks when any error is detected in the serial data from the CCU.

Self-diagnostic indication:

The name of the board, on which an error is first detected, is displayed when there is any malfunctioning board inside the camera head.

Example:


The board name
PR NG
To see the status of the other boards
BOARD STATUS
VA IE PR TR
OK NG NG . .
AB DF SG PS
. . OK OK OK
Board names

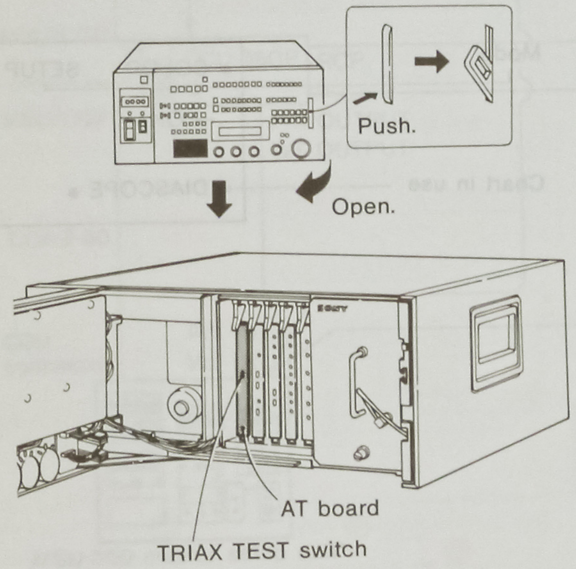
Set the DISPLAY switch to ON if the switch is set to OFF.
Set the DISPLAY switch to OFF and then set it to ON again if the switch is set to ON.

OK : Good
NG : No good
. . : Impossible to check in this mode

It is possible to check each board inside the camera head under the following conditions.

Board	TEST button on the CCU side		TRIAX TEST switch*
	On	Off	ON
VA	○		
IE	○		
PR	○		
TR			○
AB		○	
DF	○	○	
SG	○	○	
PS	○	○	

○: Possible to check the board

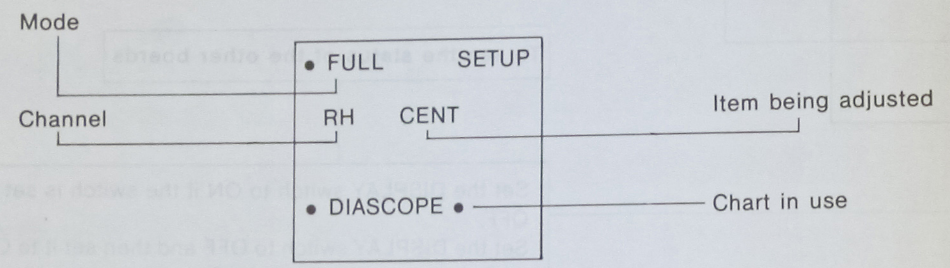

Push.
Open.
AT board
TRIAX TEST switch

* The TRIAX TEST switch is located on the AT board inside the CCU-360P as shown in the illustration.

Other indications

1 When auto setup and reference setup are executed, the mode, channel, etc. are displayed.

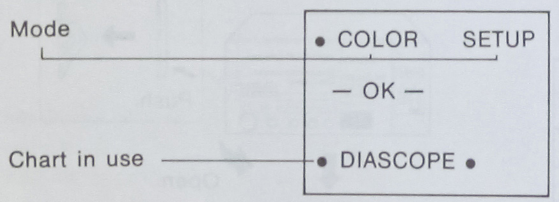
Example


Mode
● FULL SETUP
Channel
RH CENT
Item being adjusted
● DIASCOPE ●
Chart in use

2 When auto setup and reference setup are complete or when any error is detected in auto setup and reference setup, the following messages are displayed.

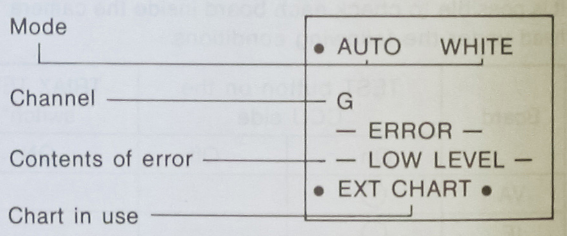
When auto setup and reference setup are finished

Example


Mode
● COLOR SETUP
— OK —
Chart in use
● DIASCOPE ●

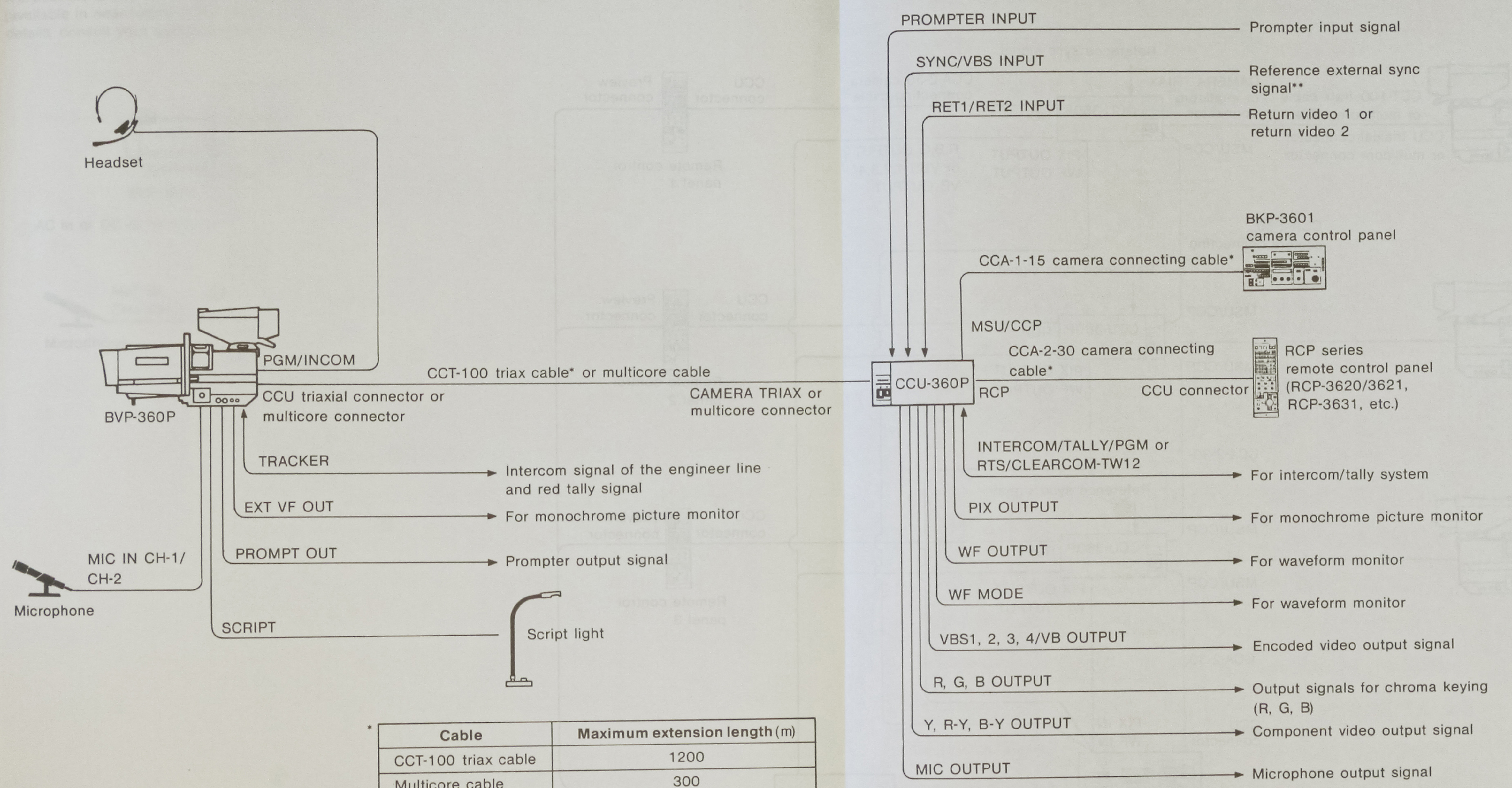
When any error is detected in auto setup and reference setup

Example


Mode
● AUTO WHITE
Channel
G
— ERROR —
Contents of error
— LOW LEVEL —
● EXT CHART ●
Chart in use

1-7. APPLICATION SYSTEMS

1-7-1. Single Camera Operation in Combination with the CCU-360P


Headset
PGM/INCOM
BVP-360P
CCU triaxial connector or multicore connector
CCT-100 triax cable* or multicore cable
CAMERA TRIAX or multicore connector
TRACKER
Intercom signal of the engineer line and red tally signal
EXT VF OUT
For monochrome picture monitor
PROMPT OUT
Prompter output signal
MIC IN CH-1/ CH-2
Microphone
SCRIPT
Script light
CCU-360P
PROMPTER INPUT
Prompter input signal
SYNC/VBS INPUT
Reference external sync signal**
RET1/RET2 INPUT
Return video 1 or return video 2
BKP-3601 camera control panel
CCA-1-15 camera connecting cable*
MSU/CCP
CCA-2-30 camera connecting cable*
RCP
CCU connector
RCP series remote control panel (RCP-3620/3621, RCP-3631, etc.)
INTERCOM/TALLY/PGM or RTS/CLEARCOM-TW12
For intercom/tally system
PIX OUTPUT
For monochrome picture monitor
WF OUTPUT
For waveform monitor
WF MODE
For waveform monitor
VBS1, 2, 3, 4/VB OUTPUT
Encoded video output signal
R, G, B OUTPUT
Output signals for chroma keying (R, G, B)
Y, R-Y, B-Y OUTPUT
Component video output signal
MIC OUTPUT
Microphone output signal

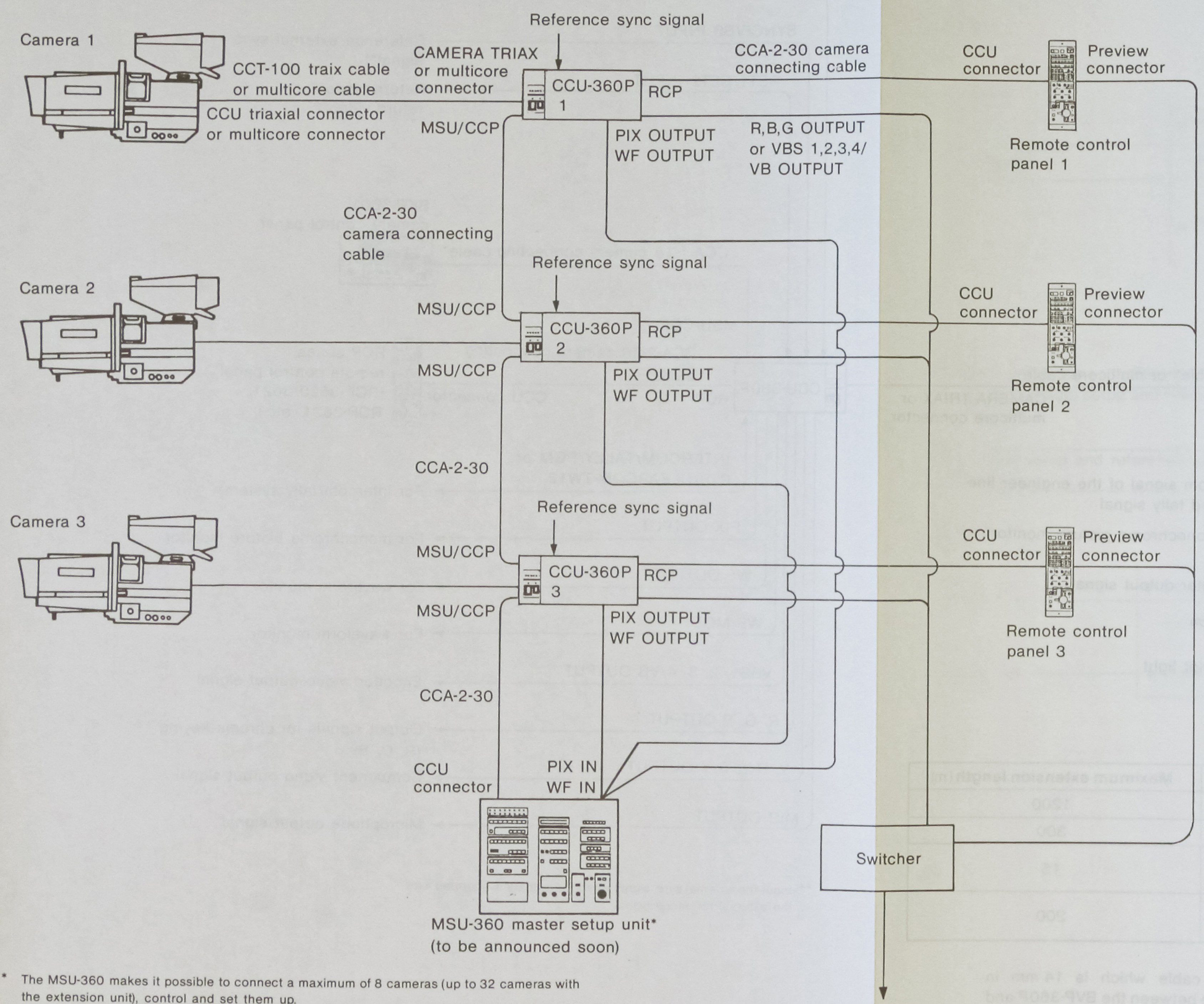
*

Cable	Maximum extension length (m)
CCT-100 triax cable	1200
Multicore cable	300
CCA-1-15 camera connecting cable	15
CCA-2-30 camera connecting cable	200

- By using a triaxial cable which is 14 mm in diameter, the distance between the BVP-360P and the CCU-360P can be extended up to 2,400 m.

** Input the external sync signal when the camera is operated with the external reference signal.

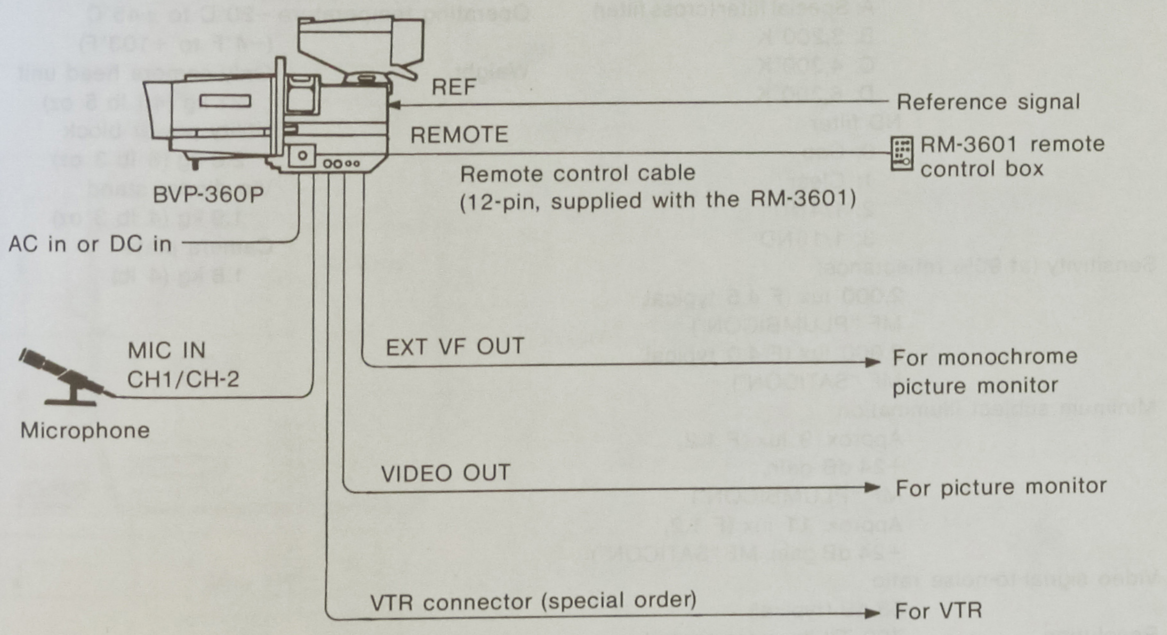
1-7-2. Multiple Camera Operation in Combination with the CCU-360P and the MSU-360


Camera 1
CCT-100 traix cable
or multicore cable
CCU triaxial connector
or multicore connector
Reference sync signal
CAMERA TRIAX
or multicore
connector
CCU-360P
1
RCP
MSU/CCP
CCA-2-30 camera
connecting cable
PIX OUTPUT
WF OUTPUT
R,B,G OUTPUT
or VBS 1,2,3,4/
VB OUTPUT
CCU
connector
Preview
connector
Remote control
panel 1
CCA-2-30
camera connecting
cable
Camera 2
Reference sync signal
MSU/CCP
CCU-360P
2
RCP
MSU/CCP
PIX OUTPUT
WF OUTPUT
CCU
connector
Preview
connector
Remote control
panel 2
CCA-2-30
Camera 3
Reference sync signal
MSU/CCP
CCU-360P
3
RCP
MSU/CCP
PIX OUTPUT
WF OUTPUT
CCU
connector
Preview
connector
Remote control
panel 3
CCA-2-30
CCU
connector
PIX IN
WF IN
Switcher
MSU-360 master setup unit*
(to be announced soon)

* The MSU-360 makes it possible to connect a maximum of 8 cameras (up to 32 cameras with the extension unit), control and set them up.

1-7-3. Self-contained Operation

It is possible to operate the BVP-360P with the RM-3601 remote control box (available in near future) if the inside of the camera head is modified. For details, consult your authorized Sony representative.

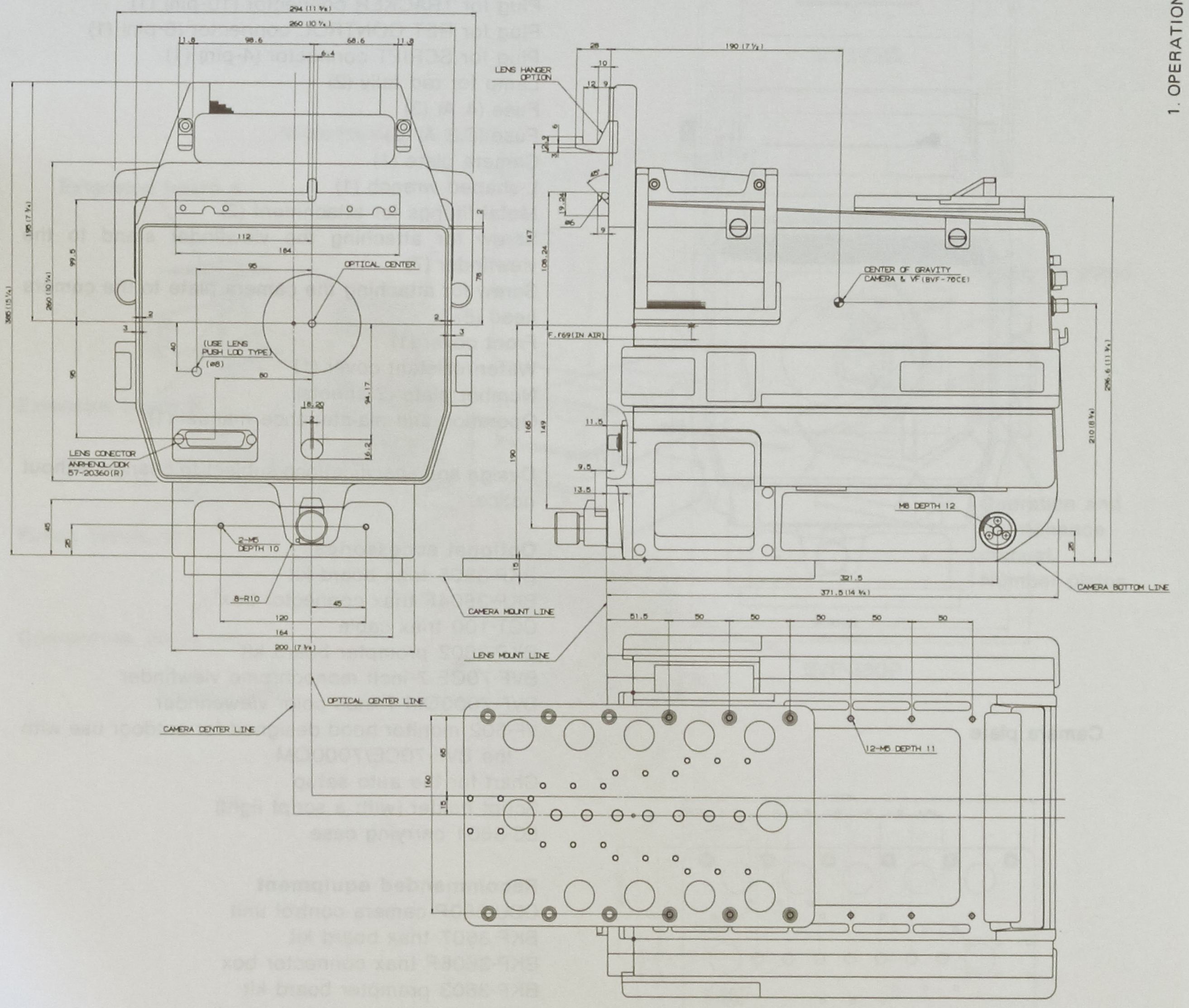

REF
Reference signal
REMOTE
RM-3601 remote
control box
Remote control cable
(12-pin, supplied with the RM-3601)
BVP-360P
AC in or DC in
MIC IN
CH1/CH-2
Microphone
EXT VF OUT
For monochrome
picture monitor
VIDEO OUT
For picture monitor
VTR connector (special order)
For VTR

1. OPERATION

1-8. SPECIFICATIONS

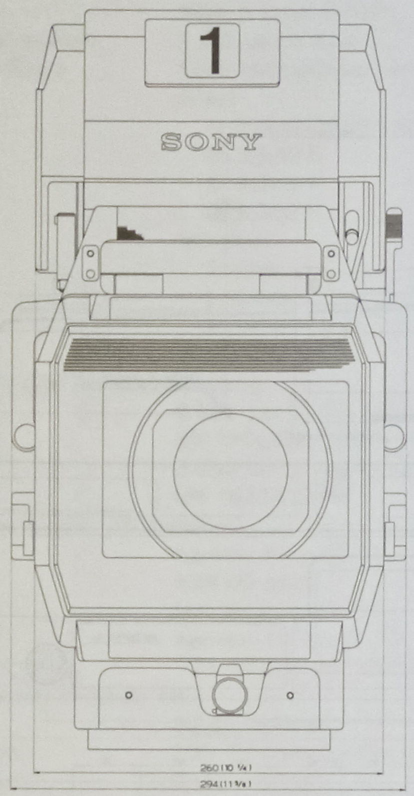
Pickup tube	⅔-inch MF "PLUMBICON" or MF "SATICON"
System	RGB 3 tube system
Spectral system	F 1.2 prism system
Built-in filters	Color temperature conversion filters A: Special filter (cross filter) B: 3,200°K C: 4,300°K D: 6,300°K ND filter 0: Cap 1: Clear 2: 1/4ND 3: 1/16ND
Sensitivity (at 90% reflectance)	2,000 lux (F 4.5 typical, MF "PLUMBICON") 2,000 lux (F 4.0 typical, MF "SATICON")
Minimum subject illumination	Approx. 9 lux (F 1.2, +24 dB gain, MF "PLUMBICON") Approx. 11 lux (F 1.2, +24 dB gain, MF "SATICON")
Video signal-to-noise ratio	58 dB (typical)
Resolution	700 TV lines (at center)
Registration	Zone I: 0.05% Zone II: 0.1% Zone III: 0.15%
Geometric distortion	1% (all zones)
Connectors	
Input and output	CCU triaxial connector and CCU coaxial connector or multicore connector
Output	UTILITY: 3-pin 100, 120, 220, 240V ac selectable, 100 VA max. VIDEO OUT: BNC type Composite, 1 Vp-p, 75 ohms EXT VF OUT: BNC type 1 Vp-p, 75 ohms RET OUT: BNC type 1 Vp-p, 75 ohms PROMPT OUT: BNC type 1 Vp-p, 75 ohms SCRIPT: 4-pin 5W, 12V dc
Input	REF: BNC type 1 Vp-p, 75 ohms MIC IN CH-1/CH-2: XLR type, 3-pin, −60 dB REMOTE: 12-pin RET CONTROL: 6-pin
Others	TRACKER: 10-pin PGM/INCOM: double jack (two wires) Lens connector: 36-pin (for Sony's recommended lenses)
Operating temperature	−20°C to +45°C (−4°F to +103°F)
Weight	Only camera head unit 21 kg (46 lb 5 oz) Utility power block 2.8 kg (6 lb 3 oz) Viewfinder stand 1.9 kg (4 lb 3 oz) Camera plate 1.8 kg (4 lb)

Dimensions Only camera head Unit: mm (inches)

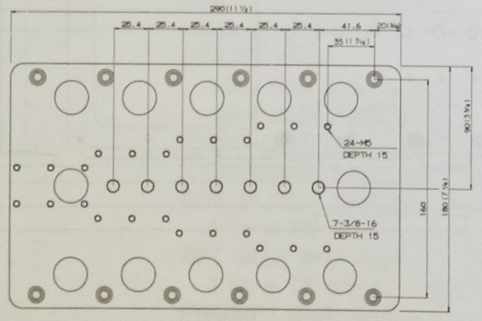


294 (11 5/8)
260 (10 1/4)
LENS HANGER OPTION
OPTICAL CENTER
(USE LENS PUSH LOD TYPE) (ø8)
LENS CONECTOR ANRHENOL/DDK 57-20360(R)
2-M5 DEPTH 10
8-R10
200 (7 7/8)
F.f69(IN AIR)
CENTER OF GRAVITY CAMERA & VF (BVF-76CE)
M8 DEPTH 12
CAMERA BOTTOM LINE
CAMERA MOUNT LINE
LENS MOUNT LINE
OPTICAL CENTER LINE
CAMERA CENTER LINE
12-M5 DEPTH 11
385 (15 1/4)

Camera head with BVF-70CE, BVF-7000QM (optional)


1
SONY
260 (10 ¼)
294 (11 ⅝)

Camera plate


290 (11 ½)
25.4
25.4
25.4
25.4
25.4
25.4
41.6
20 (13/16)
35 (1 7/16)
90 (3 9/16)
160
180 (7 ⅛)
24-M5
DEPTH 15
7-3/8-16
DEPTH 15

Supplied accessories

Viewfinder stand (1)
Extension board A (1)
Extension board B (1)
Extractor (1)
Plug for TRACKER connector (10-pin) (1)
Plug for RET CONTROL connector (6-pin) (1)
Plug for SCRIPT connector (4-pin) (1)
Lamp for red tally (2)
Fuse (4 A) (3)
Fuse (6.3 A) (2)
Camera plate (1)
L-shaped wrench (1)
Metal fittings for attachment (2)
Screw for attaching the viewfinder stand to the viewfinder (7)
Screw for attaching the camera plate to the camera head (8)
Front cover (1)
Water-resistant cover (1)
Number plate (2 sheets)
Operation and maintenance manual (1)

Design and specifications subject to change without notice.

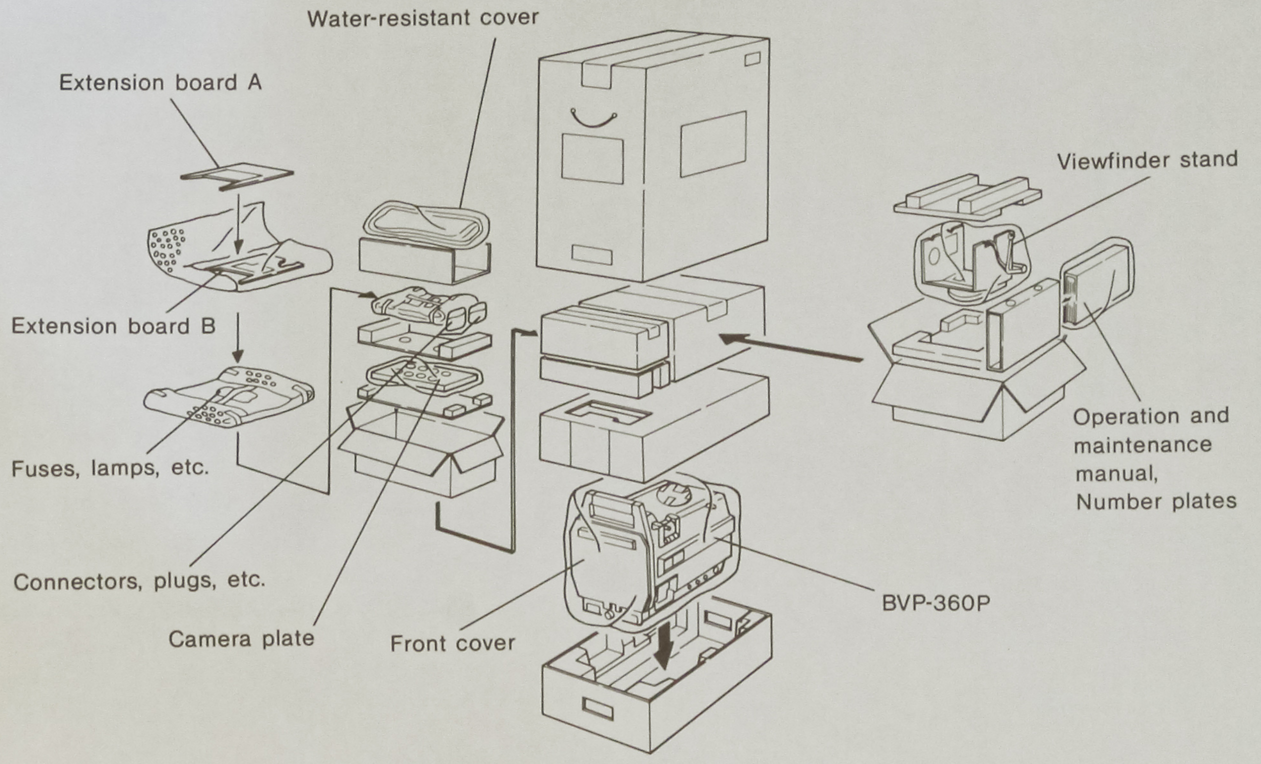
Optional accessories

BKP-3605 triax board kit
BKP-3604F triax connector box
CCT-100 triax cable
BKP-3602 prompter board kit
BVF-70CE 7-inch monochrome viewfinder
BVF-7000QM 7-inch color viewefinder
VF-502 monitor hood designed for outdoor use with the BVF-70CE/7000QM
Chart for the auto setup
Script holder (with a script light)
LC-3601 carrying case

Recommended equipment

CCU-360P camera control unit
BKP-3607 triax board kit
BKP-3606F triax connector box
BKP-3603 prompter board kit
BKP-3601 camera control panel
RCP series remote control panel (RCP-3620/3621, RCP-3631, etc.)
MSU-360 master setup unit
RM-3601 remote contol box
RMM-3601 rack mount metal

1-9. PACKING


Water-resistant cover
Extension board A
Viewfinder stand
Extension board B
Operation and maintenance manual, Number plates
Fuses, lamps, etc.
Connectors, plugs, etc.
BVP-360P
Camera plate
Front cover